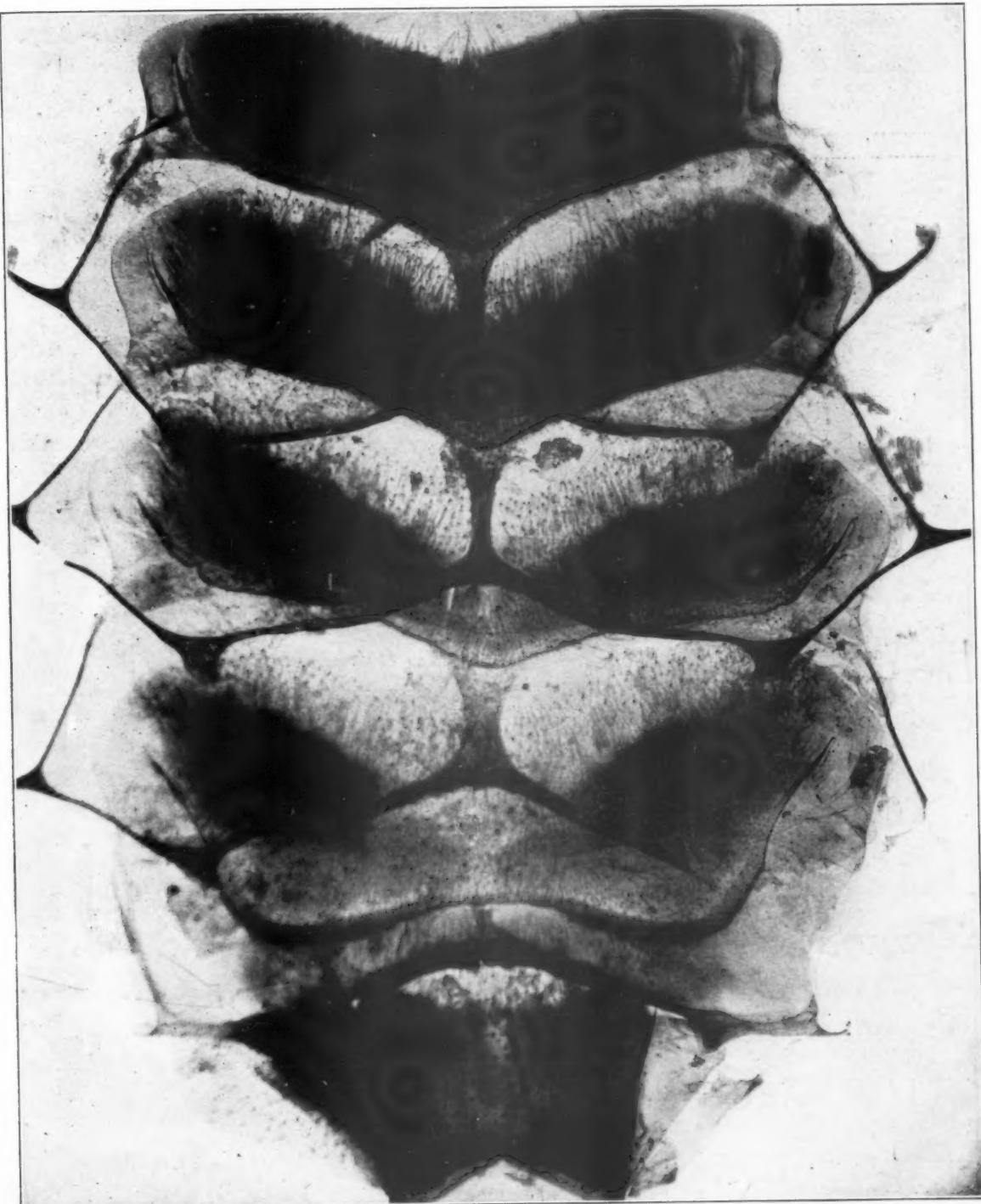


AMERICAN BEE JOURNAL

OCTOBER

1914



American Bee Journal



PUBLISHED MONTHLY BY
American Bee Journal
1st Nat'l Bank Bldg. Hamilton, Illinois

IMPORTANT NOTICE
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Sir:—I am pleased to inform you that the three queens were received in good condition, and have been safely introduced.
(Signed) C. GORDON HEWITT,
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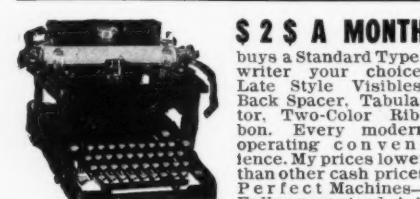
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STILLWATER, Oct. 7, 1913.

Your queen arrived in first-class condition, and introduced her without any difficulty.
(Signed) PROF. E. C. SANBORN,
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Extra Breeding Queens, \$3.00; Selected, \$2.00;
Fertilized, \$1.50; lower prices per dozen or more Queens. Safe arrival guaranteed. Write

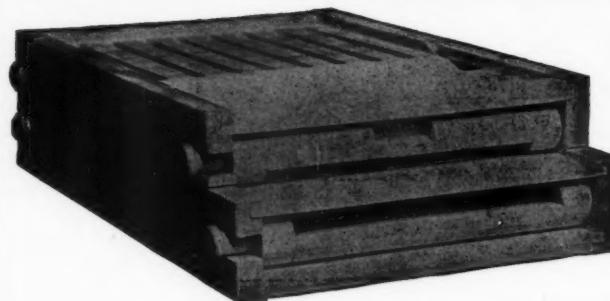
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This country, politically, Switzerland Republic, lies geographically in Italy, and possesses the best kind of bees known.
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1. It allows feeding during any time of the day or year—at mid-day or in mid-winter.
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 8. It prevents swarms from going to the tops of trees or away to the woods when the beekeeper is away.
 9. It practically eliminates swarming, as the colonies usually show no inclination to swarm. Why, I do not know.
 10. It is adjustable to make a shallow bottom for summer and a deep one for winter.
- It contains many other valuable features which will be apparent to any beekeeper upon investigation, and if it is once tried it will always be used.
- 8-frame size, \$2.00; 10-frame size, \$2.50. Italian Queens, Breeders, \$10 to \$25.**

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"The Busy Bee Men"

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Comb and Extracted Honey Wanted

TENNESSEE-BRED QUEENS

42 years' experience in queen-rearing—Breed 3-band Italians only

	Nov. 1 to May 1			May 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested.....	\$1.50	\$7.50	\$13.50	\$1.25	\$6.50	\$11.50	\$1.00	\$5.00	\$9.00	\$7.75	\$4.00	\$7.50
Select Untested	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested.....	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
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Capacity of yard 5000 queens a year—Select Queen tested for breeding, \$5

The very best Queen tested for breeding, \$10. 300 fall reared tested Queens ready to mail, \$2.50 to \$10 each.

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed.

John M. Davis, Spring Hill, Tenn.



American Bee Journal

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Everything for the beekeeper. Address.
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Read what J. L. PARSONS, of Charlton, N. Y., says: "We cut one of your Combined Machines last winter 50 shaft hives with 7-in. cap, 100 honey-racks, 500 brood-frames, 3,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it with this Saw. It will do all you say it will." Catalog and price-list free.

Address, **W. F. & JOHN BARNES**, 611 Ruby St., Rockford, Ill.

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Try My Famous Queens From Improved Stock.

The best that money can buy; not inclined to swarm, and as for honey gatherers they have few equals.

3-Band, Golden, 5-Band and Carniolan Bred in Separate Yards

Untested, one, 75c; 6, \$1.25; 12, \$7.50; 25, \$14.25; 100, \$50. Tested, one, \$1.50; six, \$8.00; 12, \$15. Breeders of either strain, \$5. Nuclei with untested queen, one-frame, \$2.50; six one-frame, \$15; two-frame \$3.50; six two-frame \$10.40; nuclei with tested queen, one-frame, \$3.00; six one-frame, \$17.40; two-frame, \$4; six two-frame \$23.40. Our Queens and Drones are all reared from the best select queens, which should be so with drones as well as queens. No disease of any kind in this country. Safe arrival, satisfaction, and prompt service guaranteed.

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QUEENS of MOORE'S STRAIN of ITALIANS

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That fill the supers quick.
With honey nice and thick.

They have won a world-wide reputation for honey gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$10.00. Selected untested, \$1.25; six, \$6.00; 12, \$11.00. Safe arrival and satisfaction guaranteed. Circular free. **J. P. MOORE,**
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Bingham Bee Smoker

Nearly Forty Years On the Market



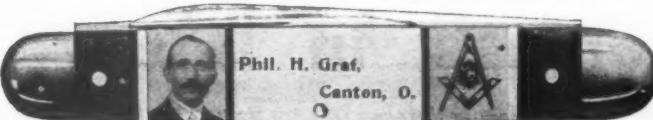
Patented

The original bee smoker was invented and patented by Mr. T. F. Bingham in 1878, 1882, 1892 and 1903. The Bingham Smoker is up to date, and the standard in this and many foreign countries. It has recently been improved, and is the all-important tool of the most extensive honey producers of the world. No other invention in apiculture has been so important, as little could be accomplished without the bee smoker. For sale direct or at your dealers. Postage extra.

Smoke Engine.....	4 inch stove, Weight 1 3/4 pounds, \$1.25
Doctor.....	3 1/2 " " " 1 5/8 " .85
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Your Name and Address will be put on one side of the handle as shown in the cut, and on the other side a picture of a Queen-Bee, a Worker-Bee, and a Drone-Bee. The handle is celluloid, and transparent, through which is seen your name. If you lose this Knife it can be returned to you, or it serves to identify you if you happen to be injured fatally, or rendered unconscious. The cut is the exact size. We have succeeded in getting this knife made in lots from genuine car-van steel. It is especially well tempered and keeps its edge remarkably. When ordering be sure to write exact name and address. Knife delivered within two weeks after we receive order.

Price, postpaid, \$1.00; or with a year's subscription to the American Bee Journal—both for \$1.80; or given FREE as a premium for sending us 3 New subscriptions at \$1.00 each.

American Bee Journal, Hamilton, Illinois.

Untested Italian Queen-Bees

OUR STANDARD BRED

6 Queens for \$6.00;

3 for \$3.50; 1 for \$1.25

American Bee Journal, Hamilton, Illinois

American Bee Journal

"Falcon" QUEENS

Three-band and Golden Italians, Caucasians and Carniolans

SELECT	Untested, July 1st to Oct. 1st, one, \$.85; six, \$4.50; twelve, \$ 8.50
	Untested, July 1st to Oct. 1st, one, 1.00; six, 5.50; twelve, 10.00
	Tested, \$1.50 each. Select tested, 2.00.

All queens are reared in strong and vigorous colonies, and mated from populous nuclei. Instructions for introducing are to be found on the reverse side of the cage cover. A full line of bee supplies and foundation manufactured by us at Falconer, N. Y. Write for samples of our foundation and Red Catalog, postpaid.

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"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. CO.,

FALCONER N. Y.

Where the good bee hives come from

HONEY LABELS

Owing to the many enquiries we have had for Honey Labels, we have put in a line of these for the convenience of our readers.

Send for catalog, giving samples of labels with postpaid prices. We also list **Envelopes and printed Letter Heads**.

American Bee Journal, Hamilton, Illinois.

SPECIAL OFFER

Will sell 300 choice tested Italian Queens at 85c each. These are the very best queens in our 3 apiaries, and will guarantee every queen to give entire satisfaction. If not satisfied within one year we will refund your money.

FRED LEININGER & SON
Delphos, Ohio

Gleanings in Bee Culture for 1914.

The Magazine for the Beginner, Back-lotter, and Specialist Beekeeper

For several years we have been doing our best to make GLEANINGS an indispensable publication for the wide-awake beekeeper whether he has but one colony, a small suburban apiary, or a series of out-apiaries numbering hundreds of colonies in all. We believe we have never received such enthusiastic approval of our efforts as we received in 1913, when hundreds of letters from our friends told of their appreciation. We wish that we might print a number of them here, but we prefer to utilize the rest of the space for outlining our plans for 1914. For 1914 we shall continue the special numbers, the feature which has so delighted our readers during the last three years. In deciding just what subjects to take up, we have not selected topics at random, for we have been guided by expressions of the majority.

JANUARY 1—Bees and Poultry.—We think we are safe in saying that no special number that we ever published proved so popular as our February 15th issue for 1912. In getting out another special number devoted to the interests of poultry-raising and beekeeping, we propose to surpass our former efforts and to get together the best material possible on poultry raising from the beekeepers' standpoint.

FEBRUARY—Bees and Fruit.—Our March 15th issue for 1912 has been used far and wide by beekeepers and fruit-growers alike to show the value of bees in large orchards. In the two years that have elapsed, however, so much new material has developed that in order to be entirely up to date it is really necessary to have another special number on the same subject. We have a wealth of material that has never before been given to the public. Extensive fruit-growers, who are not especially interested in honey-production, will tell of the value of bees in orchards.

MARCH 1—Beekeeping in Cities.—Probably few beekeepers realize the number of beekeepers there are in every large city. City beekeeping is a most interesting topic, and in addition to stories of beekeeping told by professional men, we shall have discussed various problems connected with bees in

attics, or roofs, and in back lots. We also have a true story of a beekeeper in a city who was fined \$100.00 because his bees were considered a nuisance, and who afterward appealed to a higher court and won out. A good story.

APRIL—Breeding.—Ever since we first began having special numbers there have been requests on the part of a good many of our readers for a special number on breeding. We are glad that we are able to arrange for it this year, for it is a fact that very little is known in regard to breeding bees. Breeding is one of the most important subjects connected with our pursuit. We shall publish special articles by noted queen-breeders on qualifications of breeding queens. Queen-rearing both for the small beekeeper and the specialist will be fully discussed.

JUNE 1—Moving Bees.—We, ourselves, expect to move 300 colonies of bees to Florida, get a good honey crop, double the number of colonies, and move them back again in the spring. Details of moving by boat, wagon, auto-truck, and by rail will be fully described and illustrated, and other large beekeepers having experience along this line have also promised articles for this number.

AUGUST 1—Crop and Market Reports.

—There has never yet been a systematic effort put forth for the compiling and publishing of comprehensive crop and market reports from various parts of the country. In 1914 we are going to make the effort of our lives to get telegraph reports from important fields, such as the clover-belt, Texas, Colorado, Idaho, and California, etc. These will be published right along as soon as we get them, but in this August 1st issue we shall have a grand summary of the crop reports and conditions of the market in general. No beekeeper should miss this important number.

SEPTEMBER 1—Wintering.—We have not yet learned all there is to be learned in regard to wintering. A number of specialists are going to make experiments during the winter of 1913-14, which experiments will be published in this number. We shall also give our own experience summed up as to feasibility of wintering northern apiaries in the South.

IS NOT ALL THIS WORTH WHILE?

We have now given you our plan for 1914. If you are now trying to make the most out of your bees, we feel sure you cannot afford to miss such a wealth of information as the subscription price, \$1.00, will bring you.

The A. I. ROOT COMPANY, Medina, Ohio

AN EXTRAODINARY OPPORTUNITY**Good for 30 days only**

The **AMERICAN BEE JOURNAL** has arranged with the leading magazines for a series of very special BARGAINS IN MAGAZINE SUBSCRIPTIONS, good for 30 days only. The volume of subscription business has grown enormously within the last few years. Most people like to subscribe in November and December. The congestion in attempting to handle almost a year's business in a month or two is a very serious problem. A remedy has suggested itself. Why not induce our readers to subscribe early, thus reducing the complaints and avoiding the rush? It is worth something to accomplish this, and the following money saving offers are the result. The thrifty will profit. The rest will keep us busy enough in December. Here are all the worth-while magazines. Every club on this page will positively cost more this fall. Buy now and save from 25 to 100 percent. This is your opportunity. Take advantage of it by sending your order TODAY.

American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only	* Both magazines in this special club must go to same address.		
To-Day's Magazine	Regular Price, .50	\$1.60	American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only
McCall's Magazine	Regular Price, .50		Pictorial Review	Regular Price, 1.00	\$2.85
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Housewife	Regular Price, .50		American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only
	Total value, \$3.25		McClure's Magazine	Regular Price, 1.50	\$2.85
		Thereafter \$1.85	Woman's Home Companion	Regular Price, 1.50	
American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only		Total value, \$4.00	Thereafter \$3.25
Ladies' World	Regular Price, 1.00	\$2.10			
Housewife	Regular Price, .50		American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only
McCall's Magazine	Regular Price, .50		American Magazine	Regular Price, 1.50	\$2.85
	Total value, \$3.00		McClure's Magazine	Regular Price, 1.50	
		Thereafter \$2.50		Total value, \$4.00	Thereafter \$3.15
American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 days Only			
Mother's Magazine	Regular Price, 1.50	\$2.35	American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only
Pictorial Review	Regular Price, 1.00		McClure's Magazine	Regular Price, 1.50	\$2.85
	Total value, \$3.50			Total value, \$4.00	Thereafter \$3.00
American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only	American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only
Modern Priscilla	Regular Price, 1.00	\$2.35	McClure's or American Review of Reviews	Regular Price, 1.50	\$4.10
Pictorial Review	Regular Price, 1.00		Woman's Home Companion	Regular Price, 1.50	
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Mother's Magazine	Regular Price, 1.50		Cloth Binding, 2.50		
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*Everybody's Magazine	Regular Price, \$1.50	Our Special Price for 30 Days Only	American Bee Journal	Regular Price, \$1.00	Our Special Price for 30 Days Only
*Delineator	Regular Price, 1.50	\$2.85	Scribner's Magazine	Regular Price, 3.00	\$3.35
American Bee Journal	Regular Price, 1.00			Total value, \$4.00	Thereafter \$3.85
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Address your order and send remittance by Check, Postal or Express Money Order to

American Bee Journal

First National Bank Bldg.

Hamilton, Illinois

These Experts Have a Hand in All the Lewis Beeware You Buy

IS THIS WORTH ANYTHING TO YOU?

When you consider buying Bee Supplies, ask yourself these questions:

- Where can I buy (not the most) the best for my money?
- What kind of material will I get?
- What sort of workmanship will be furnished?
- How will these goods be packed?
- Who are making and standing back of these goods?
- What are their facilities for distribution?

— HERE IS THE ANSWER : —

The G. B. Lewis Company has been in the business of manufacturing bee supplies for forty-one years. It has grown from a carpenter shop to a plant covering nearly six acres of ground, with an annual output of 30,000,000 sections and 100,000 hives. During all the years, in the face of advancing prices on material and labor, the scarcity of suitable lumber, competition of cheaper and inferior goods, it has had many opportunities to cheapen its product at the expense of quality. But it has steadfastly stood by its guns, maintaining one standard of quality and workmanship. LEWIS BEEWARE is the same today, was the same yesterday, and will be the same tomorrow.

Now, what about the workmanship in these goods?—What skill do they represent? In a word, what is their personality? The business has been under one management, and the lumber has been bought by one buyer for twenty years. He is still managing the business and buying the lumber. The head mechanic came into the factory when a boy. He has been supervising for thirty-six years. The Bee-hive superintendent has been devoting his life to making Bee-hives for thirty years. The Section boss has been watching the Lewis Section machinery and output for twenty-nine years. These men represent the skill, the brains and the conscience that go in the goods. We ask you again—DOES THIS MEAN ANYTHING TO YOU?

A WORD ABOUT LEWIS PACKING.—The Lewis Company also make a business of Packing Boxes; therefore, they know how goods should be packed. A patent woven wood and wire package, made only by the Lewis Company, is employed largely in packing. This makes the package light, compact and damage proof.

WHO IS BACK OF THESE GOODS?—The LEWIS COMPANY has for forty-one years stood back of every transaction it has ever made. On examination of Lewis goods, if they are not as represented, you are not asked or expected to keep them. This is our guarantee, and applies to Lewis distributing houses as well as the factory. The Lewis Company has a reputation for fair and square dealing second to none.

LEWIS BEEWARE may be obtained almost at your own door. Thirty distributing houses located at convenient points throughout the United States and foreign countries are there to serve you.

Our 1915 catalog will be ready for distribution at the usual time.
Send for one giving name of distributor nearest to you.

G. B. LEWIS COMPANY

Manufacturers of Lewis Beeware

Watertown, Wisconsin, U. S. A.



(Entered as second-class matter at the Post-office at Hamilton, Ill., under Act of March 3, 1870.)

Published Monthly at \$1.00 a Year, by American Bee Journal, First National Bank Building

C. P. DADANT, Editor.
DR. C. C. MILLER, Associate Editor.

HAMILTON, ILL., OCTOBER, 1914

Vol. LIV.—No. 10

EDITORIAL COMMENTS

In Canada

In compliance with an invitation to attend the convention of beekeepers of the province of Quebec, in Montreal, Nov. 11 and 12, wife and I have decided to make a trip into Canada early in November, going as far as the city of Quebec and calling upon a few beekeepers along the way. We anticipate a good time, for we have many friends to meet.

A few days later, I hope to attend both the Iowa meeting at Ames and the Illinois meeting at Springfield. All the above-named conventions will be again mentioned in our November issue, in time to inform those who may wish to attend. There is nothing better than these meetings, both in the benefit from information gained and the cheerfulness of pleasant acquaintances formed.

Wax-Producing Organs

The picture on our cover page is a greatly magnified photograph of the above-named organs of the worker bee, made by our learned friend, Mr. E. F. Bigelow, of Sound Beach, Conn. In order to show the details, we here-with display one of the organs as given in the microscopic studies of Count Barbo, of Milan, Italy, drawn by Clerici, and published in the 70's by the Italian Beekeepers' Association. It is taken from our Revised Langstroth.

The ventral plates of the abdomen of the worker bee consist of six pieces of scales, sliding upon each other as do

the rounded dorsal scales. The first one near the thorax is small and rounded, the last one at the tip of the abdomen is heart-shaped. The other four are shaped like the accompanying cut. The two upper pentagonal surfaces are transparent and wax yielding, and are covered by the segment immediately above them. The lower part, covered with hair, forms the segment which covers the next pair. This is of hard, horny "chitine," as are the outlines which surround the upper organs.

The two upper "surfaces are slightly

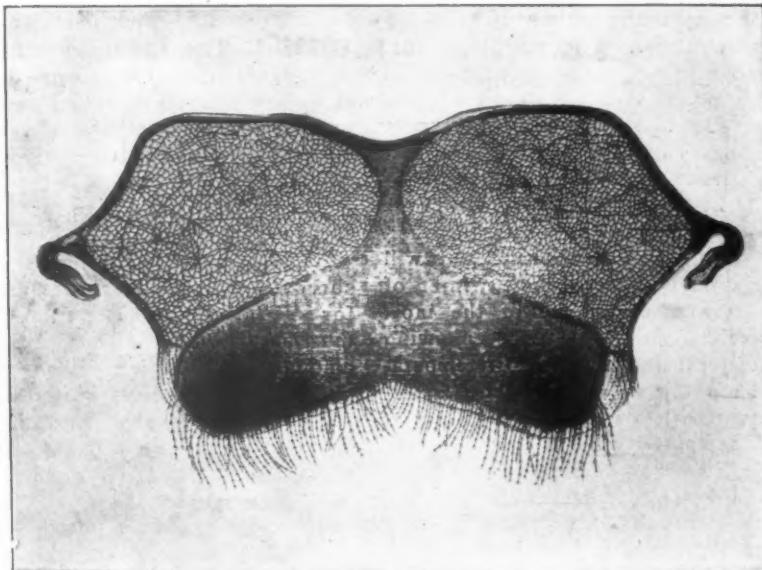
sunk, and are the moulds on which the wax scales are formed from the secretion which, as Latreille has shown, passes through them in a liquid state, from glands situated beneath. In the queen and drone these disks are absent."

The explanation in quotation marks is borrowed from Thos. W. Cowan's "Honey Bee."

Walter S. Pouder Retires

It is with regret that we inform our readers of the retirement of Mr. Walter S. Pouder, of Indianapolis, Ind., from the bee and honey business. This move is caused by the ill health of Mr. Pouder, who will aim to recuperate by retirement.

Years of association with Mr. Pouder have taught us to love him not only as a thoroughly upright and excellent



ONE OF THE WAX PRODUCING ORGANS OF THE HONEY BEE GREATLY MAGNIFIED



American Bee Journal

business man, but also personally as an individual.

May your retirement, Mr. Pouder, give the beekeeping world the chance to learn of your rapid improvement. May our loss be your gain.

The business of Mr. Pouder has been disposed of, and for the present at least will be run under the same name as formerly.

Wintering—Absorbents Over the Brood-Chamber

There is some opposition, among our writers, to the use of moisture absorbents over the brood-combs in cold weather. Several arguments are used which may appear plausible at first sight. The first one is that, in a state of nature, bees usually have the opening of their tree-trunk or gum below the colony, and that they carefully close up with propolis and render impervious to moisture all the walls of their abode.

This is only circumstantial evidence. The bees take the tree hollows as they find them, and must necessarily close them against all enemies, except in such part as they can easily defend. To accept for granted that it is impossible to improve upon nature in any case would be to agree that the wild creatures such as deer, buffalos, grouse and quails are safe in the wildest and deepest snow storms. Yet we all know that there are times when thousands of these creatures are killed by the rigors of winter and deep snow.

We are also told that a cushion of absorbents over the cluster of the colony acts as a ventilator, and is therefore injurious by creating a current of air. By the same token the man who sleeps under a woolen blanket would be also injured by the porous condition of his covering. Yet we all know that a woolen cover, porous though it be, is much preferable to an impervious cover such as a rubber-lined blanket.

To pass judgment upon the comparative advantage of different modes of wintering, it is necessary to bring the bees through very severe weather. Almost any kind of management will do in mild winters. The winter of 1884-5, which was one of the most severe that we have ever seen, owing to its great duration, its low temperature and the extreme violence of its polar winds, gave us an opportunity to test, comparatively and upon a large scale, the different ways of wintering out-of-doors.

We had at that time some 80 chaff hives distributed in four apiaries, with a few double-wall hives without chaff

and a number of single-wall hives with but little protection. We did not then believe in absorbents, but as we used oil cloths over the frames, we placed cushions filled with chaff over the brood-chamber, to keep the heat from escaping through the impervious oil cloth. However, some of our cloths had been damaged by the bees and had holes in them. We had neglected to make any changes in them, and this is what gave us the occasion to make a comparative test, without foresight or intention on our part.

At the end of a long period of excessive cold which carried us far into the month of March, we made an examination of the colonies. Most of those which had impervious ceilings had died from the excess of moisture which had condensed over and around them, even in the chaff hives. Each of those which had room for the escape of moisture through the holes in the cloths into the mats above was safe, except in a few cases of single-wall hives. The greater the space through which the moisture could escape, the safer and healthier the colony was. This was conclusive. It was not an experiment on two or three colonies, but on several hundred.

It is true that a large amount of ventilation below does help to carry away the moisture, but it is at the expense of warmth and a much greater amount of stores has to be used. We have seen colonies winter without any bottom-board at all in box-hives and gums, the entire space below the combs being open. But for economical wintering, a reasonable amount of lower ventilation and a heavy cushion of absorbents, preventing drafts, but allowing the escape of moisture, as does a woolen blanket over a man's body, give the best results. It is true that in most winters the chaff hive will protect a strong colony so that no freezing temperature will surround the cluster. But it is well to be ready for the worst, and in the worst winters the best chaff hives are not proof against freezing temperature.

As a matter of course, moisture absorbents are not the only requirement for safe wintering. The food supply must be ample and of good quality. No amount of protection will save a colony supplied, in a long winter without flights, with grape or apple juice or honey-dew as stores. Our people tested this to our sorrow. In both the winters of 1910-11 and that of 1911-12 our bees had honey-dew. In preparing for the first of those winters, my sons removed most of the honey-dew and

replaced it with sugar syrup or honey. The winter was very mild, and the bees that were left with the honey-dew stores came through about as well as the others. This encouraged them to save all the trouble of extracting and feeding back the following winter. But it was a hard winter and the loss was tremendous. We live and learn.

Wintering Bees in Iowa

On our desk is another bulletin by the indefatigable President of the Iowa State Beekeepers' Association, our friend Pellett. It bears the above title and gives very good methods of wintering, quoting some of the best authorities in the State. However, we must criticize the opinion emitted in this bulletin by our old friend Dr. Bonney, who does not believe in the "absorbent cushion" over the brood-combs, when using chaff hives. Had Dr. Bonney been with us when we experimented with 80 chaff hives in the rigorous winter of 1884-5, he would alter some of his arguments.

The bulletin is finely illustrated, and contains 20 pages. It is known as No. 22 of the Agricultural Extension Department of Ames, Iowa. Let the good work go on.

Feeding With Sugar Syrup

In the September number, following a contribution by Mr. McKinnon, we gave Doctor Miller's views and promised our readers a study of this matter and the expression of former writers. For this we have gone back into the Journals as far as 1879 and have examined different works on modern apiculture.

Quinby, one of the oldest and practical authors in modern beekeeping, said: "If no money is at hand, sugar may be used instead; add a little water, boil until near the consistency of honey, and skim it; when cool enough, use the same as honey." In his later work, "New Beekeeping," he wrote: "Add one quart of water to 3 pounds of sugar, bring to a boil and skim." This is $1\frac{1}{2}$ to 1.

Heddon used 3 pounds of water to 10 pounds of sugar with a teaspoonful of tartaric acid. This is 3, 3 to 1.

N. P. Allen, in 1880, advised using 2 pounds to 1, adding a little cream of tartar or a little vinegar. At different times, both before and after, dozens of others recommended the same thing.

G. H. Ashby, in the American Bee

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Journal for December, 1888, said: "I use 2 parts of sugar to 1 of water and never had it granulated. If hard water is used, acid must be added to correspond with the hardness of the water. Any confectioner can tell you all about it. Some do not need these instructions, but I am satisfied that a good many do."

Here, perhaps, is the reason why there is such difference in the reports as to the crystallization of the sugar. Ashby's suggestion is worthy of note. We have ourselves practiced feeding 2 to 1 for over 40 years and only once have seen any loss from crystallization. Our Ontario correspondent, Mr. Byer, in the September issue advises the same proportion. Mr. Byer is an experienced apiarist and practices feeding regularly. But let us return to an examination of authorities.

C. N. White, of England, advised the use of 12 pounds of sugar for each gallon of water ($1\frac{1}{2}$ to 1) for spring feeding and of 24 pounds of sugar per gallon of water (3 to 1) for fall feeding. He said, following Langstroth's advice: "The reason for this difference is that, in the spring, the bees leave the hive for water with which to thin the food they, in their capacity of nurse bees, prepare for the grubs, and when syrup is given with a good proportion of water these journeys to the pump are rendered unnecessary, while in the autumn, unless syrup about the consistency of honey is supplied, the bees will have considerable trouble in getting rid of the superfluous moisture in order to seal it over."

Of all our noted writers, the one who most incessantly repeated exactly the same instructions is Doolittle. In 20 years, in his contributions to the American Bee Journal and in reply to enquiries, he explained, more than 15 different times, how he had the syrup crystallize in the feeders and in the hives, and now he entirely stopped it by using 5 pounds of honey for every 45 pounds of syrup made of 15 pounds of water and 30 pounds of sugar.

The Roots advise equal quantities of sugar and water. They say that "it is better to feed the syrup thin than thick, for then the bees will ripen it, and when syrup is thickened and ripened by the bees it will not granulate, but make the finest and best food." They acknowledge, however, that if feeding has been deferred until quite late it may be ad-



BEAUTIFUL SCENERY AT MAQUOKETA, IOWA, WHERE THE GALLAGHERS LIVE

visable to use 4 parts of sugar and 3 of water.

Dr. Miller's way formerly was to prepare a syrup that approached the consistency of honey, 5 to 2, with a teaspoonful of tartaric acid for every 20 pounds of sugar. In his "Fifty Years Among The Bees" he says he would prefer the same syrup if he were to feed late in September or October. But for August or early September feeding he prefers the method given by him in our last number.

It is really best to feed early, but in countries where a fall flow is expected, the apiarist often delays feeding in the hope that the bees may yet gather enough. Such was the case this year, in many localities.

All authorities are agreed that slow

feeding is preferable to fast feeding, because there is more chance for the bees to invert the sugar by its mixing with saliva in their stomachs. The syrup ripens better. But even the proportion of 2 to 1 makes a thinner syrup still than well ripened honey.

If we are feeding for winter supply, slow feeding, on the other hand, will cause the bees to breed and build combs and a considerable amount of syrup will be consumed in so doing. Some benefit may be expected from this extra breeding, if the quantity supplied is ample. Thin syrup, stored in the cells in cold weather, may eventually sour in them.

When feeding must be resorted to in cold weather, the best food to give is candy. The recipe is simple: Add soft water to sugar and boil slowly



ANOTHER MAQUOKETA SCENE

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until the water is evaporated. Stir constantly so that it will not burn. To know when it is done, dip your finger first into cold water then into the syrup. If what adheres is brittle to the teeth, it is boiled enough. Pour into shallow pans, slightly greased and, when cold, break into pieces of suitable size.

Sugar candy is fed over the brood combs of a colony. It is food in its most concentrated form and may be used both out-of-doors and in the cellar. There is no danger of diarrhea when the colonies are supplied with this or with thick syrup.

Unripe honey or thin nectar is sure to prove injurious to the bees if they are compelled to winter upon it. According to some authorities, the nectar of blossoms may contain as much as 80 per cent of water, when fresh harvested. This would mean 5 parts of water to 1 of sugar. We will some day discuss this matter, for there is undoubtedly a great difference in the thickness of the nectar at different

times, according to the atmospheric and soil conditions.

To sum up the experience gathered, give your bees thin food in the summer, thick food in the winter. If you fear crystallization in the combs, add 10 per cent of honey or a little tarratic acid. Use soft water.

A discussion of this subject will be welcomed by the Journal.

Beekeeping Information in the Dailies

The St. Louis Post-Dispatch of Sunday July 19, contains a whole page devoted to the study of bee-life, borrowed from "The Courtship of Animals," by W. P. Pycraft, of London. It is a very interesting description of the natural history of the honey-bee, and aside from a few minor inaccuracies, is correct. The cuts have evidently been borrowed, perhaps in a roundabout way, from American authors. We congratulate this great daily for the space thus granted to bee-culture.

Rockford, Ill., on Tuesday, Oct. 20, 1914. All those interested in bees are invited to attend.

B. KENNEDY, Sec.
2507 W. State St., Rockford, Ill.

The Gallagher Apiary.—Arriving at the pretty and lively city of Maquoketa, Iowa, on the evening July 6, I repaired to the hotel, and after cleaning away the grime of dust and cinders with a good bath, I ate a hearty supper and made some enquiries. I had never met Mr. Gallagher, but I had often corresponded with him, so I knew he was an old resident. His business is that of a jeweler. I do not wish to throw showy bouquets, but I can truly say that I have found out by long acquaintance with beekeepers that a successful jeweler always makes a good honey producer. And why? Because, as Heddon used to say: "Our business is a business of details." There is no business more composed of fine detail than the jeweler's business, especially if he is also a watch and clock repairer. He knows that the least little derangement will make a clock go wrong. That is why I repeat: A beekeeping jeweler is a successful beekeeper.

In answer to my telephone call, the reply came in a pleasant voice: "Glad to hear that you are here. My boy will call for you in a few minutes." Indeed, the boy came, with a big automobile, but he turned out to be a bright young man of 26. To my remark that he was a pretty big "boy," he laughingly replied, "I am the kid." It was only a few blocks to the Gallagher home, and I spent a very pleasant evening. As it was already dark, the visit to the bees was put off until morning.

Mr. Gallagher has solved the problem of keeping a large number of colonies on a small plot of ground. His 165 colonies are located on a back lot 60 feet by 110. But he manages to keep there also a very good vegetable garden, where lettuce, parsnip, cabbage, celery, peas, beans, strawberries, asparagus, etc., are grown. He has also there

MISCELLANEOUS NEWS ITEMS

Fall Meeting in Connecticut.—The fall convention of the Connecticut Beekeepers' Association will be held in the old Senate Chamber, State Capitol at Hartford Saturday, Oct. 24. The morning session will be devoted to an informal gathering, payment of dues, etc.; the afternoon session to regular business, report of Connecticut Fair Committee and addresses.

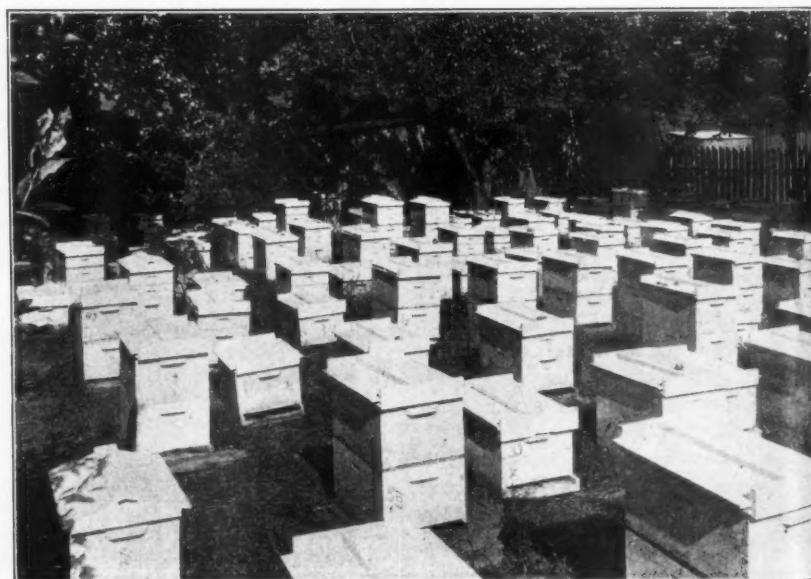
It is expected that important action will be taken at this meeting relative to the establishment of an apiary at the Connecticut Agricultural College, for which the association has been working for several years. The Program Committee announces the following:

Mr. O. F. Fuller, of Blackstone, Mass., president of Worcester Beekeepers' Association and originator of the famous "Fuller candy" for winter feeding, will address us on "Experiments with Bee Foods," demonstrated, and "Rearing Queens in the Brood-Chamber with a Laying Queen."

Those who failed to hear Mr. Fuller at Amherst on June 12, last year, should not miss this opportunity. The remainder of the program follows: L. C. Root, (subject to be chosen). W. C. Rockwell, "Signs of a Good Queen."

John Thorret, "Wintering." Question box, etc. L. WAYNE ADAMS, Sec.

Northern Illinois and Southern Wisconsin Convention.—The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in the Court House in



A PART OF THE GALLAGHER APIARY WHICH OCCUPIES A SPACE 60X60 FEET

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a chicken house, from which the chickens are now excluded for the benefit of the bees. In this house the bees are wintered, as I will explain farther on. The bees are actually occupying only a space 60x60 feet. They do not annoy the neighbors, for they are all of a peaceable strain of Italians. They have no European foulbrood for the same reason, although this disease is in the vicinity.

The hives are 8 frames. To those who are aware of my predilection for very large hives, I will say that this is perhaps the only stumbling block in Mr. Gallagher's path. His bees swarm more than he likes. But he knows how to produce honey, comb honey, and get his sections well filled. When he puts on a second case, he usually puts it on top of the first. When the first is nearly sealed, he shifts them. He does this from time to time as occasion requires. As a result, he secures most of his sections well sealed. He rears his own queens from his best stock. We don't do that. We don't think we can spare the time. But I believe it pays, for if you breed from your most prolific, most active, and most peaceable stock, you will be likely to secure prolific, active and peaceable bees.

We think 100 colonies is enough for a locality. Either the vicinity of Maquoketa is better than our own for pasture or the smaller size of the colonies makes a larger number possible. Mr. Gallagher had a fair crop of clover in the supers. It is true that they have had very good weather and plenty of rain, while in our own locality the absence of rain had dried everything.

Mr. Gallagher clips all his queens, as do most of the apiarists who are unable to be always there when the bees swarm. His method of clipping is his own. He does not pick her up. With a pair of jeweler's tweezers in the left hand, he catches the queen by one of her wings while she stands on the comb. Pulling a little on it causes her to grip the comb and try to pull away. Then with manicure scissors in the right hand, he cuts the projecting wing. This he illustrated for me on a worker-bee with great expedition, showing that he was an expert at the job.

Now as to wintering. His cellar has



THE GALLAGHER CHICKEN HOUSE USED TO WINTER THE BEES.—(See article.)

a hot water furnace in it, and is too warm. The chicken house is close to the apiary, and our friend hit upon the plan of making it a winter repository. This was done with trifling expense. The inner walls were lined with 4 or 5 inches of fine straw, held in place with wire netting, so as to make a non-conducting siding. About 2 feet of the same material is used overhead. For ventilation, two stove pipes are set up in the upper packing and draw off all the moist air into the space under the roof.

Mr. Gallagher said that often in very cold weather the underside of the roof was coated with frost produced by the moist air arising from the cluster. For the entering air, he relies simply upon the porosity of his straw packing. During the past five or six winters, he has thus wintered some 150 colonies with insignificant loss. The hives are brought in without their cover and piled along, in rows, leaving just a passage between the rows for inspection purposes. This is the cheapest winter repository I have ever seen.

After our trip to the Coverdale farm, mentioned in the August number, Mr. Pellett, the inspector, joined us. We enjoyed the hospitality of the Gallaghers, and were shown the surroundings in an automobile evening tour. We visited some remarkable grottoes, about 10 miles away. I had no idea that such specimens of natural wonders could be found in Iowa.

The growing of sweet clover is given an impetus throughout the country, but more so in that part of Iowa, owing to a number of farmers following the example given by Mr. Coverdale. The use of this plant in agriculture is going to prove a boon to the beekeeper throughout the land.

A New Uncapping Knife.—Mr. Stephen Anthony, of New Zealand, sends us the translation of the description of a rotary uncapping knife invented in Russia, by A. M. Loginof. The invention

is based upon that of the foot-power dental drill, a steel disk being used for blade. We do not believe this invention would appeal to those who have used the steam-heated Bingham knife. However, it shows that human ingenuity is at work in bee-culture, around the globe.

Illinois State Meeting.—The 24th annual meeting of the Illinois State Beekeepers' Association will be held at the State House in Springfield on Thursday and Friday, Nov. 19 and 20.

Mr. N. E. France, of Wisconsin, will be with us. His subject will be "Short Cuts." Prof. J. G. Mosier, of the University of Illinois, will speak on the subject of "Sweet Clover." Mr. C. P. Dadant, of Hamilton, Ill., and Dr. E. F. Phillips, of Washington, D. C. Subject, "Temperature and Moisture of the Hive in Winter." Come prepared to help make it a good meeting.

JAS. A. STONE, Sec.

The New Jersey Summer Meeting.—The summer meeting of the New Jersey Beekeepers' Association is growing in interest and attendance, which promises well for the improvement of bee-keeping within the State.

On July 8, more than 70 people gathered from all parts of the State to make new acquaintances and renew the old, and to learn whatever was to be offered by the beginners, and, no less, by the veterans.

Mr. Robert B. Spicer, at whose queen-rearing yards, located among the mountains of northern New Jersey, and about two miles from Wharton, the meeting was held, gave talks and practical demonstrations on queen-rearing. Many beginners were heard to remark upon the value which these demonstrations would be to them. Without reflection upon the professionals, it may be said the association is composed largely of "back-lotters," who con-



THE GALLAGHER HOME AT MAQUOKETA

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tribute in no small degree to the interest and success of the meetings of the association, and it is safe to count upon always meeting a large representation of the faithful.

Mr. Spicer provided a substantial lunch which was thoroughly enjoyed, under the trees. President C. H. Root gave a talk upon his special hive cover, "which never warps, cracks nor blows off." Mr. Hornor, of Philadelphia, also contributed a paper, after which there was a general informal discussion. Secretary (and inspector) Carr made a photograph of those present, which was very successful.

The spirit of sociability which pervaded the meeting added greatly to the enjoyment, and mention was frequently made of the next meeting. The annual meeting will be held in December at New Brunswick, in the Entomological Building of the New Jersey State Agricultural Department. C. D. CHENEY.

Lyndhurst, N. J.

Long Idea Hives.—Won't you please publish a description with your opinion of the "long idea" hive as used in Europe?

EUGENE BAKER.

Los Angeles, Calif.

The name "long idea" is essentially American. In Europe these hives are called "horizontal," because they are single-story hives, without supers. The hives upon which supers are used are called "vertical" in contradistinction.

The systems of apiculture mostly in vogue throughout the world locate the brood-nest in one body and the storage apartment or supers in one or more additional bodies, placed over the brood-chamber. Differing from these leading methods are two extremes, the horizontal hive system without supers, and the sectional hive system in which even the brood-chamber is divided into two or more stories. Among the latter are the Heddon and Danzenbaker hives.

The horizontal hive, of which the Layens is the main type, is a hive with deep frames, usually deeper than long, and containing from 16 to 30 frames. The Layens frame measures $13\frac{1}{8}$ inches in width by $16\frac{1}{8}$ in depth, outside. The inside measurements are $12\frac{3}{8}$ by $14\frac{3}{4}$. These measurements are taken from Bertrand's "Conduite du Rucher" (Management of the Apiary).

It is self evident that sectional hives must have very shallow frames while horizontal hives must have very deep ones. Hence the deep frames used by Layens. The principal claims for these hives are:

1. Their simplicity. There is only one kind of frame and one kind of body in the apiary. The colony spreads out horizontally, and more frames are

added as necessary. When the honey is extracted, every frame may be removed which does not contain brood. With the help of dummies, the hives accommodate the smallest as well as the largest colonies.

2. Swarm prevention. The brood may be removed from the entrance and empty combs placed there so that the field workers have to pass over or through them to reach the brood-nest. It is claimed by the supporters of this method that this is one of the best preventives of swarming. It is true.

3. Better wintering. Those who use deep frame hives are unanimous in saying that the bees winter better in them than in shallow hives, because they have more honey above the cluster.

The disadvantages are as follows:

1. The single story hive does not permit of comb-honey production. We have ourselves tried the placing of sections in side frames and almost invariably the bees have failed to fill the lower part of the sections, and have soiled them much more than sections located above the brood-chamber.

2. It is much more difficult to remove deep combs from a brood-chamber than shallow ones. Those who are ac-



EXPERIMENTAL APIARY OF MR. BOUCHARD IN BURGUNDY.—NOTE THE HORIZONTAL "LONG IDEA" HIVES ON THE RIGHT

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A SMALL GROUP OF THOSE IN ATTENDANCE AT THE CLARINDA, IOWA, FIELD MEET AUG. 12

1, Carl Anderson. 2, Dr. E. L. Crowson. 3, M. E. Darby. 4, E. J. Baxter. 5, C. B. Baxter. 6, H. C. Hartman. 7, O. E. Ostrus. 8, Thos. Parker. 9, T. E. Ostrus. 10, W. D. Foley. 11, Harold Ostrus. 12, Oscar Ostrus. 13, G. M. Shaver. 14, J. L. Strong.

customed to handling them count this a worthless argument, but all novices readily see the difference.

3. It is more difficult to extract the honey from deep combs than from shallow super frames. The combs are heavy and more tiresome to handle. More stooping is required.

4. When removing surplus honey for extracting, the hive must necessarily be kept open quite a while. This gives occasion for robbing, if the crop is at an end. When supers are used, the super may be removed, the hive closed at once and the bees shaken out in front. A bee-escape, which may be used also under a super, is out of the question with the one story, horizontal hive.

The name "long idea" was given to the first horizontal hives offered in this country, in 1872, by Gen. Adair, of Kentucky. He had named his hives "new idea," but the change was popularly made in some way to what the "idea" represented. The champion of "long idea" hives in this country is the old veteran soldier and practical beekeeper, O. O. Poppleton, of Florida. His hives hold 24 frames $1\frac{1}{2}$ by $1\frac{1}{2}$ inches, inside measure. In the American Bee Journal of April 13, 1899, in reply to objections made to this style of hive, Mr. Poppleton wrote:

"The discussion over these hives occurred when I was first starting my apiary in Iowa. After trying both styles for a year or two, I adopted the long single-story hive and still use it, not having a single double-deck hive

in my apiaries. I used about 500 double-story hives for two years in Cuba, and was glad to return to my own style.....Let me review Mr. Doolittle's objections very briefly. I can work a single-story hive much easier than a double story. The extra depth of my frame and a little higher stand makes the top of the hive the same height from the ground as the top of a two-story Langstroth hive. I shake my bees inside, not on top of the hive, and avoid the trouble of crawling bees he speaks of. I used to be as successful as the average bee-keeper in wintering my bees in north-

ern Iowa, and I used the long hive entirely."

We have ourselves tried the "long idea" with the Quinby frames, and had at one time some 30 hives of this style with 20 frames each, which were equivalent to 30 frames of the Poppleton hive. We also had some 60 hives with 16 frames $1\frac{1}{2}$ by $1\frac{1}{2}$ inside. But these were so arranged that we could also use supers on them. We finally returned entirely to the system of shallow supers which we use still.

The Seventh Iowa Summer Meeting.—

The series of summer meetings being held in Iowa do not lack in interest as the season advances. At some points the attendance is not as large as others, owing to the fact that the number of beekeepers in reach are less. At Clarinda on Aug. 12 the friends gathered at the apiary of J. L. Strong, who has kept bees in Iowa for nearly half a century. Nearly as many came from Missouri as from Iowa, and E. J. Baxter and son of Nauvoo, Ill., came all the way across the State to be with us. M. E. Darby, the State Bee Inspector of Missouri, and E. J. Baxter were the principal speakers, and entertained their hearers in an interesting manner with incidents of days that are past and friends who have passed on.

Bee diseases and other subjects were discussed for a time, and much pleasure was the result of the examination of the Strong apiary and apparatus.

The day was very pleasantly spent in informal discussion and in cultivating the acquaintance of the persons in attendance. Only one more of these summer meetings remains to be held. The photograph shows only a small part of those present at Clarinda.

FRANK C. PELLETT.

Atlantic, Iowa.

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Beekeeping as a Vocation—Location

To ILLINOIS WIFE:—There is something to be learned by a visit to a large apiary; but don't count too much on it. If you dip in for yourself, with the aid of a good text-book on beekeeping and a bee journal, you will know more certainly whether or not beekeeping is a thing exactly fitted for you. Dadant's Langstroth (\$1.25) and Root's A B C and X Y Z of Bee Culture (\$2.00) are the leading text-books on bee-culture. To either of these Dr. Miller's "Fifty Years Among the Bees" (\$1.00) may serve as a supplement. It gives in detail his entire management for the year, making it more instructive than a number of visits would be. Either of these books can be obtained by sending the price attached to the American Bee Journal, Hamilton, Ill.

To give up another business to embark upon beekeeping with little or no previous experience would be a hazardous experiment. If there should be a failure of the honey crop in the first year—and such things do happen—one would be likely to wish very much that the experiment had not been tried. Much better it would be to begin beekeeping on a small scale as a side issue, continuing the previous regular business until such time as experience should warrant casting loose from other sources of income. For some will make a success of beekeeping and others a failure; and no one can tell in advance who shall be the successes, and who the failures. Neither can any one decide the question for himself by any amount of study or investigation without actually trying it on with

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the bees. Those, however, who find themselves fitted for the business will find a fascination and enjoyment in it entirely independent of the monetary reward obtained.

With regard to choosing a location, it is difficult to give anything but general advice. Right where you are is probably a good place to begin, and possibly to continue. In the North, white clover and basswood are the leading honey plants for the early harvest, and buckwheat and heartsease for the late harvest. Alsike and sweet clover are fine yielders where they are found in quantity. A paying crop may be obtained from any one of these plants alone; but, of course, there is a better chance for success where two or more of them are found in the same locality. Please remember that a bee's locality reaches out $1\frac{1}{2}$ to 2 miles or more in every direction.

Moth and Combs

It is interesting and instructive to read what the Editor and Mr. J. L. Byer have to say about combs outdoors, pages 295 and 304. It may do no harm to tell how it is here, part way between the two places.

If a colony dies in the cellar in winter—it would no doubt be the same outdoors—it is a matter of certainty that sooner or later the combs left by the dead colony will become wormy. If left in the cellar, however, the progress of the miscreants will be very slow, and little damage will be done to the combs until some time in May or June. If taken outdoors the progress of the worms will be much more rapid; so we do not take them out until we are ready to give them in care of the bees.

If, however, combs have been left out over winter, and subjected to severe freezing, they will generally, although not always, pass through the summer without being touched by the moth. But they are never closed up so that the moth can gain no entrance, but left well ventilated. They would probably be still more secure against moth if entirely uncovered, only exposure to the rain would not be good for them. Very rarely do spiders make webs to keep out the moth.

The closer the combs are crowded together the better it seems to suit the moth, so we prefer to have combs unoccupied by bees always spread well apart.

The Smoke Method of Introduction

We have tried introducing queens by the Arthur C. Miller smoke method, only to find it a failure in every instance. Possibly our deep bottom-boards may account for the failures. It has been explained that the secret of the success of the plan is that under cover of the smoke the queen immediately rushes through the outer wall of bees into the center of the cluster, where she is safe. With 2 inches space between the floor of the hive and the bottom-bars she cannot readily do that, but must run to one side of the hive or the other before she can get up into

the cluster, and she may run the full length of the hive to the back end.

On page 304, Mr. Byer gives his experience with the plan, and one colony which was particularly vicious "was given an extra hard smoking so as to be sure of results." In spite of the severe smoking the queen was killed. According to Editor Root, however, it may not have been in spite of, but because of, the severe smoking. In Gleanings in Bee Culture for Sept. 1, he says, page 657, "Oversmoking or undersmoking will lead to failure." He further says that "apparently we would better stick to the cage plan for a while yet."

Overcoming Stubborn Queenlessness

Once in a while there happens a case of a queenless colony which is so stubborn about accepting a queen that it kills them as fast as they are given. We had such a case last year. Seven queens were killed in succession, although different plans were used and extra precautions taken. It would have been better to have broken up the colony, but there is a stubborn streak in Dr. Miller, and finally a virgin just hatched was given, which was respected and allowed to remain.

Although the introduction of a young virgin causes a delay of 8 or 10 days, as compared with the introduction of a laying queen, there is the practical certainty that it will be accepted by any colony. A colony with laying workers will not accept a good laying queen, but it will accept a very young virgin. Even a colony with a normal laying queen will not refuse a virgin less than 24 hours old, but will treat her kindly so long as she is a baby. But as soon as she becomes old enough so that it is a question between her and the old queen, then your virgin will disappear.

It would seem that it is the older bees that object to having a step-mother. So if the older bees be removed from the colony there will be less trouble. An easy way to remove them is to remove the colony to a new

place, and the best way to do that is to put on the stand, in place of the hive, another hive containing perhaps empty combs, all but one frame of brood, setting on this the supers, if there were any, then the cover, and on top of this the hive containing the colony. Then the queen is introduced to the colony on top, and when she is laying nicely things may be restored to their former condition. The returning field bees find a full colony with a laying queen, and accept the situation. But in the exceptional cases of those colonies bound to kill every queen given them the plan will not work, the old bees killing the new queen when she is put down on the stand.

So this year, having again a troublesome case, we varied the plan. We put up the colony as before, taking away the supers, at least temporarily, and on the stand we set a hive with its one frame of brood, just as before, only this time the hive was not fastened to the bottom-board. When the queen was accepted and laying in the hive on top, we went in the evening, after bees had stopped flying (before they began flying in the morning would be just as well), lifted the hive from on top and set it on the ground, gave a little smoke to the hive on the stand and carefully removed it, so as not to start the bees to flying, set the hive with the laying queen on the stand, took off the cover, put over the hive a sheet of newspaper, and carefully set on this the hive with the one frame of brood, covering it up. We thus had all the old bees imprisoned in the hive-body on top. This proceeding saved the day. When a hole was dug through the newspaper, so that the bees could get through one at a time, they did so with a confused feeling, all the fight taken out of them, glad to be accepted without any resistance.

Of course, all this trouble would hardly be worth while in ordinary cases, but it may be well worth while in the case of a valuable queen, and in any case there is a gain of several days of brood-rearing as compared with giving a virgin.

CALIFORNIA BEE-KEEPING

Conducted by J. E. PLEASANTS, Orange, Calif.

Letter from Mr. Bixby

On page 267 of the August Bee Journal, in the "California Department," appear criticisms by its venerable editor, Mr. Pleasants, of the Executive Board of the California State Beekeepers' Association and its journal the Western Honey Bee.

Ten months ago the Honey Bee, heavily in debt and receiving but a feeble support, was turned over to the present editor, admittedly to die. He adopted the policy of telling the truth about apicultural matters, as near as he could ascertain it. Naturally, this

aroused some criticism, but today the journal is free from debt, has the cash support of some of the most prominent beekeepers all over the country, and without expenditure for advertising, but through the personal influence of the Editor and a few other earnest workers, has increased its paid subscription list over 120 percent.

From the viewpoint of the Editor and the Executive Board, there is no "grave mistake" about this.

EDITOR WESTERN HONEY BEE.

We are sorry that our August "notes" displeased the Editor of the Western Honey Bee, but judging from

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the following published in the August "Bee," it would seem we are not alone:

EDITOR HONEY BEE:—At the regular meeting of our San Bernardino County Club the members appointed a committee to communicate with you in regard to the reference to the prices of honey for this year in the editorials of the May Honey Bee, we feel it was uncalled for and should not have appeared; and quite a number have expressed themselves that they would not support the "Bee" if it is continued.

J. A. MACK, *Secretary-Treasurer.*

W. R. WIGGINS, *President.*

B. G. BURDICK, *Vice-President.*

Bloomington, Calif., July 4, 1914.

Miscellaneous Notes

In an inspector's rounds among the apiaries, he finds many interesting and some amusing features. A beekeeper whom I visited lately keeps his hive register with bricks. He has his code reduced to a system equal to a card index. A brick on edge means one thing, one lying flat another, two bricks extra good condition, honey to spare, etc. He says he can stand at one end of the apiary and read the entire condition of his apiary from that distance. It is certainly a simplified method, if he can keep his bricks in place.

A story, which was told me some time ago by a young man who assisted an irascible old beekeeper in time of stress, will bear repeating. The old man's lameness from rheumatism made it impossible for him to wheel in the honey, but he could manage the work in the extracting house by sitting at the table while uncapping the combs. His wife and the young man who came to help took the honey from the hives, the young man of course doing the heavy work. The old gentleman was somewhat given to using "language" when irritated, a fact which greatly troubled his wife who was a pious woman. The day was hot, and apparently the bees were, too, for when the old gentleman reached down for a fresh comb to uncum he got stung on the end of the nose. Suddenly throwing up his head he bumped it hard against the table. Well, for a few sec-

onds the "air was blue." The old lady and her helper, who, by the way, was a near neighbor's son, were working at the time near the honey house. She turned a shocked and grave face to her assistant and said, "Poor wicked old man, Louie, I am afraid he and your pa will fetch up at the same place."

As an example of efficiency in caring for bees, I have not seen surpassed that of a young woman who manages an apiary I inspected last week. She cares for an apiary of 125 colonies. She took out this season five tons of extracted honey. The apiary is in reach of both sage and bean bloom. All the colonies except one, which was slightly affected with European foul brood, were in excellent condition. They have ample stores for carrying them through the winter, and there were only two queenless colonies in

the entire apiary. The young lady has had entire management of this apiary for a year, and has had no help even during extracting time. The bees are in good, well painted hives, and the whole management would be a credit to any man.

The quaintest beekeeper of my acquaintance is little Joseph Holtz, Jr., the 8-year-old son of a neighbor of mine, who, by the way, is one of our representative bee-men. Little Joe has taken a keen interest in all his father does with bees since he has been old enough to hold the smoker, has never seemed to have any fear of bees, and has been father's "helper" for over a year. His father has given him a little apiary of his own, nine colonies I think, some regulars and some nuclei.

The picture shows Joseph, Jr., without mask, holding a frame, and his



THE BOYS ARE PROUD OF THEIR POWER EXTRACTOR



LOADING HONEY IN THE MOUNTAINS



PART OF A SIX TON CROP

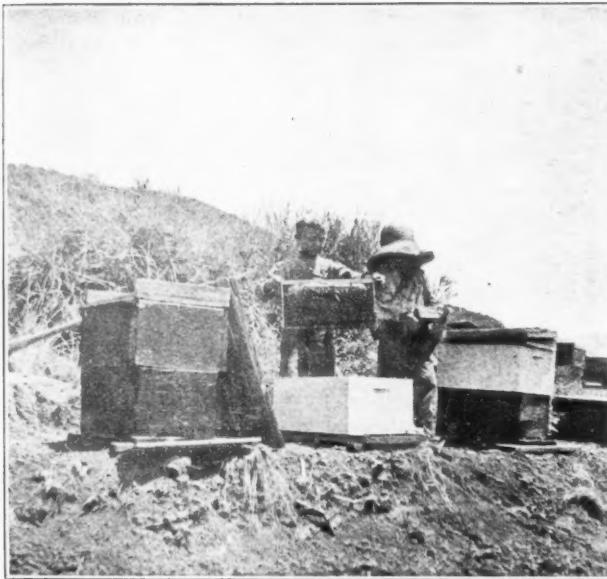
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brother Alban, aged 6, with the mask, wielding the smoker. The little apiary is on a hillside adjoining the father's large apiary. When the picture was taken the bees were flying lively and somewhat cross. These children also have each a little garden of his own which they fenced (with wire) and till themselves. They speak both German

and English, the parents wisely teaching them the mother tongue first.

The season's honey is now mostly hauled out of the mountain regions and stored, awaiting better prices.

The accompanying snapshots show the loading of the honey cases at the apiaries.



OUR COMING BEEKEEPERS

CANADIAN BEEDOM~



Conducted by J. L. BYER, Mt. Joy, Ontario.

Feeding

This brings up the feeding question, a live issue this fall in Ontario, as with a failure of the honey crop in most cases, and high price of sugar, many beekeepers hardly know what to do. Wherever sugar can be obtained doubtless it will be fed, but in many cases the beekeepers have not a bit of honey of any kind even if they preferred to feed it instead of sugar syrup. In my own case I thought I had definitely settled the matter as to how thick a syrup to feed, and it gave me quite a jolt to see what friend J. A. McKinnon has to say on this question in the last issue of the American Bee Journal.

While I have the greatest respect for Mr. McKinnon's ideas (he is one of the best queen breeders and all-around beekeepers), yet I think he is greatly mistaken in his conclusions when he states that a syrup made of two parts of sugar to one of water, fed in large quantities to the bees, will granulate solidly. I do not even add any acid to the syrup, and I am just about as sure as I can be of anything, that this thick syrup does not act that way with me.

How do I know? Simply by the fact that after using this proportion for a number of years I have never lost a colony so fed, and when weighing colonies after being fed this mixture, they always showed a greater net gain than other colonies fed a like amount of sugar with more water to make a thinner syrup.

Often I have "jammed" a very populous colony to get spare combs to give to weaker colonies in the late fall, and I have never yet noticed this granulation when giving these combs to the bees, and these weaker colonies invariably winter well when so treated. Give me a thick syrup made of two parts of sugar to one of water, feed the syrup warm to the bees in the evening, the faster the better, at any time after Sept. 20 in our locality, and I will not bother about insuring the bees over winter provided proper protection is given, and they have enough of this mixture to keep them until warm weather. When I once find the trouble Mr. McKinnon mentions, then I will change the formula, but for the present I am fully persuaded to use the old standard when I start to feed next Monday (21st) if all goes well.

Outlook Improves

At this date, Sept. 16, there has been a wonderful improvement in prospects for next season, as compared with a month ago when sending in the last lot of notes for the American Bee Journal. Bounteous rains came after Aug. 16, accompanied by ten days of warm weather, with the result that everything is as green as in early June, and whenever a bit of clover had been able to stand the drought, it is now showing up nicely. Rains came too late for buckwheat, and as a result we have a very light yield of honey from that source. From all information I have been able to gather, conditions are much the same all over the province, barring some favored localities.

In our own apiaries in York county it will keep us hustling to even up the feeding bill by selling the little buckwheat surplus we will have. Why not feed buckwheat honey? Simply because it is in super combs and has to be extracted, as very few combs are heavy and sealed enough to place in the brood-nest. Aside from that, when buckwheat honey is once extracted, I much prefer to feed sugar syrup even if I have to pay as much for the sugar per pound as I can get for the buckwheat honey. Even when sugar is as high as at the present (\$6.30 per hundred at this date), buckwheat is ruling above that figure, and I shall not feed any of the latter. I have already bought my sugar, the bulk of it, before the raise in price.

Spiders Protecting Super-Combs

Placing super-combs outside and allowing spiders to care for them (page 296) has worked finely this year. At the north yard, just referred to, we have had over 100 full-depth supers not needed, piled out all summer and not a moth in them, although many can be seen flying around in the evening. At home I had a pile in the apiary similarly situated. Have just been looking them over and found a few cells with the tell-tale veil over them. It is too late for any damage now in our locality. At the bottom of the piles of combs hundreds of wings of moths were found—all that was left of them by the few spiders in evidence.

Willow Herb in Ontario

Have you ever noticed that what at the time may seem a great hardship, will eventually turn out to be "a blessing in disguise?" Last year during the great dearth that we had at the yard 100 miles north, forest fires came uncomfortably near our large apiary and burned over quite a tract of bush and second-growth stuff.

At the time we thought the few bass woods that were burned and the amount of white clover that was killed in the more open places, augured none too well for next year's prospects. While I had often heard of willow herb from our northern Michigan friends, I never once thought that we would ever know much about the plant here in Ontario. But about Aug. 10 honey began to come in, and we soon found the bulk of it was coming from the beautiful pink

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blossoms of the willow herb that had come up where the fires had been last year. Much rain and very cool weather during the latter part of August and the first part of September cut the surplus short to what it would have been, but even at the present (Sept. 16) honey is still coming in. For the past four days we have had summer conditions again.

We have just finished the extracting

there (my father and son are at the yard), and the bees are plugging up the brood-nests in good shape. I spent three days there last week. It was fine to see the bees dropping in the grass in front of the hives at this late date, after a season at home of almost total failure. The willow herb is not a *stayer*, as two years is usually all it lasts. Then raspberries and other shrubbery crowd it out.

Surely, nearly all of us could do at least a little of this and profit thereby.

Caucasian Bees

MR. WILDER:—I see that you have much to say about Caucasian bees and advocate them highly. I have several colonies of them which are getting crossed with Italians. I find them wonderful honey gatherers. I judge from your location and experience with them that you could do a great queen business by breeding this race of bees as soon as the beekeeping world learned their value. I have them in one yard with most every other kind I could get, and they and their crosses are by far the best. I have one crossed with the Cyprians, which is making a record this season, and the dash of Caucasian blood seems to knock out much of the bad temper in them.

From past experience I believe that by selecting some of the best Caucasian queens and some of the brightest colored drones of the Cyprians, a strain of bees could be established that in appearance would be much like the 3-banded Italians but far better.

G. C. RAHN,

*Mgr. Rahn Bee and Honey Co.
Haileyburg, Ont.*

If reports are true, the Caucasian bees are fast gaining ground everywhere, and in my opinion they will soon fully come to their own in true value.

A Suggestion

I have decided not to spread my bee-business for another season, but shall apply the emergency brakes, for I have been going at a rapid rate for several seasons. Money, no doubt, will be scarce, and now is the time to call a halt. I shall buy no supplies except what I will have to have for the honey

BEE-KEEPING IN DIXIE~

Conducted by J. J. WILDER, Cordele, Ga.

In Trouble

MR. WILDER:—I have recently bought some 10-frame hives, and find that my old covers are too small for them. The metal roof and Colorado cover are long enough, but lack about $\frac{1}{8}$ -inch being wide enough. What can I do with these?

H. F. WINTER.
Tampa, Fla.

I believe the 10-frame hive has been made some larger recently in order to admit better manipulation of frames. This was a good change, even if it did come at a late time, for the regular 10-frame hive was not wide enough for 10 frames, and allow sufficient space for the easy and quick handling of the frames.

I would suggest that you use the old covers on the old hives until they give out, and the new ones on the new hives. It will not be a great task to keep them in use, for it is not often necessary to change covers, and if there should be a general mix up you can easily tell the old ones from the new. You might be able to pry the rim of the covers apart, just a little on both sides, so they would be wide enough to easily come down over the hive, and if the top edge of the rim should extend a little beyond the top they could be dressed even.

The Panic

The European war has brought a money panic which, no doubt, is felt by most beekeepers in the selling of honey and collecting for same. I, for one, am away behind from what I was this time last season. Business is fast slackening up and the question is, "What shall we do?" Of course, we must dispose of our unsold honey crop, and must not let it go at a sacrifice, but at least realize for it what we set out to at the first of the season. To do this, we must not rush it off, but place it in the hands of parties whom we know. Keep it closer at home, and if necessary put forth great efforts to dispose of a lot of it yourself.

This is a critical time, and we should exert ourselves in every way possible to dispose of even a little for cash; in other words, help to sell it. For these parties, whom we may trust to sell it at whatever they can get, may use the



PORTION OF A MOUNTAINEER'S "IDEAL" APIARY AND HONEY HOUSE IN THE BLUE RIDGE

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crop, and this will not take a great amount of capital. But, on the other hand, I am going to plan to increase the next season's crop of honey, and I am now working to that end in every way I can.

One of my apiarists, when he finished taking off, packing and shipping his crop of honey, wrote me after taking a few days' vacation, that he thought of taking up a small job until it was time to put the bees up for winter. I wrote him at once, "The panic is on us, and the times will be hard before you are aware of it. Keep right on with your apiary work. Stand by the bees, and they will in time stand by you for I have tried it. Your little job will soon be finished, and in the meantime your bees will suffer for want of attention. Go to the bees." Some time afterwards he wrote me that he was requeening nearly all his bees with the best stock, and expected to put them up for wintering in better shape than he ever had. Our other apiarists will fall in line with him as soon as they can, and no stones will be left unturned towards this end.

I have written this as a suggestion to other beekeepers, big or small.

**A Portion of One of the Writer's Apiaries
Where 100 Percent of Increase
Was Made this Season**

It will be remembered that I made considerable over 1000 colonies increase this season. The picture here shown was a portion of my O'Brien yard where 100 percent increase was made. These hives are of my own manufacture, and are made of cypress lumber throughout, including frames. They are unpainted. I have found this to be by far the most economical material I can get for hives.

More About Cypress Lumber for Bee-Hives—Cypress Defies Decay

"There are numerous cases of undisputed facts where cypress wood has withstood the test of time for 100 years with little or no repairs. Cypress resists decay longer than any other wood, does not warp or shrink, because it contains no resin, and is adapted to the best uses of paint. It is the best wood known for out-of-door uses, and is preferable for interior work. It is no more costly than other woods, and is many times more durable."

I can endorse the above statement from my own experience, and as a lumberman for nearly 30 years, I had something to say some time ago, and responses came from a number of beekeepers, stating that this material had given them better satisfaction than white pine. Also, nearly all the bee-supply manufacturers responded, stating that they had had some experience in working this kind of material into hives and hive parts, and it worked and finished up well, and they were going to use this material more extensively in the future. I have tried it to a finish along by the side of white pine, and it has given far greater satisfaction.



PART OF WILDER'S "O'BRIEN" APIARY

FAR WESTERN BEE-KEEPING

Conducted by WESLEY FOSTER, Boulder, Colo.

European Foulbrood in Colorado

We have been on the lookout for European foulbrood for some time, hoping that it might be kept out entirely when it is in the States to the east and west of us. Dr. Phillips has encouraged us with the opinion that it might not visit Colorado because we have no black bees. But European foulbrood has broken out near Paonia in Delta county on the western slope in Colorado.

So far as known the disease is limited to a district not over three miles in diameter, and the total number of colonies within the area is about 250. We will do what we can to stamp it out so that it will not spread farther. Beekeepers are urged to read up and talk with any one who is familiar with this disease, so that if it visits their apiaries they will find it out at the first outbreak. I would especially urge beekeepers in Montrose, Delta and Mesa counties to be on the lookout.

The characteristics that I first noticed were that the larvae are affected earlier than is the case with American foulbrood. A good fresh case of European foulbrood will give a sour odor if you get your nose close to the comb, and it may make you feel just a little sick at the stomach if a good inhalation is taken. The description in the United States Department of Agriculture Bulletin, "The Treatment of Bee Diseases," No. 442, if carefully studied, will lead one to make a correct diagnosis. Weak and queenless colonies

should be especially watched this fall. Strong colonies that were examined early in September in the affected apiaries in no case showed signs of the disease.

The Honey Market

We cannot foresee what the market will be this winter on honey, but comb is in good demand, and the probabilities are that the markets will be about bare by the time spring opens. The price on comb honey tends to rise, and the beekeepers should not be in too big a hurry this year to dispose of their crop. About the only concern that need be felt is to get the honey in comb disposed of before granulation sets in. In this part of the country we can tell pretty well what honey will show early signs of granulation and what will "stand up" a good long time.

Honey as Hog Feed

A western beekeeper has reported honey as a great fattener for hogs. It is this way: This party had about 50 hives of foulbrood that had to be rendered. The foulbrood had materially lessened the honey crop so that there was not much money to buy feed for the growing pigs. A few combs were thrown to the pigs, and they went for it with such a relish that it was made a regular diet in the evening so the bees would not be attracted. The pigs cleaned the honey up so well that by



the next morning there was nothing left for the bees to work on. The frames were gathered up and burned.

The way those pigs put on fat was a delight to the owner. I do not know whether this would figure out as a profitable venture, but it saved a dis-

agreeable job of melting combs and honey.

[We should be very much afraid of a few drops being left on the ground. This might be covered up with dry earth.—EDITOR.]

NOTES FROM ABROAD



BY C. P. DADANT.

It was on Aug. 28, 1913, that we reached Meiringen, going south, and we had promised to be in Nyon, at the home of Mr. Bertrand, on the 30th. So we had two days to visit some of the most wonderful beauties of beautiful Switzerland.

I have spoken of the gorge of the Gorner as far beneath the Aare gorge in grandeur. It was at Meiringen that we visited the latter. Imagine a torrent rushing in a fissure several hundred feet deep and so narrow that one can often touch both walls with the hands, while walking on a board shelf, hung over the precipice. Where the gorge is too narrow a tunnel has been built to get from one part of it to another. This gorge is over a mile in length. During the entire time you can only see a little strip of the sky between the abrupt stone walls on either side. All this is lighted at night with electricity, and must look still more fearful then.

After walking along until you think you must have almost reached the glacier from which this stream emerges, you see the gorge open and a pretty village, Innertkirchen, shows itself in the distance. It is everywhere thus in Switzerland. As you scale impossible heights you imagine yourself beyond the inhabited world, and suddenly find automobile roads, villages and fashionable hotels. It is only when the snow is reached that there is nothing but huts to be found beyond. We saw this the next day, climbing the heights of the Little Scheidegg to the "Jungfrau." It was a warm day, and avalanches were sending their thundering explosions down to us every minute, though we could see nothing of them.

We had passed through the Lake of Brienz to reach Interlaken. We later went down the Lake of Thoun to continue southward. The villages by the lakeside are pictures of beauty. The brown houses, red roofs and green hills behind them, with the dark mountain above, and still higher the white peaks, make pictures that one would like to carry away.

On the 29th, we left Interlaken early. We had breakfast at Berne, lunch at Lausanne, and dined at the Bertrand home at Nyon. Our old friend had informed us by letter that he had extended an invitation to half a dozen leading beekeepers to take tea with us at his home the next day, which was Sunday. But he had not told us that he also expected the arrival of Mr. Thos. W. Cowan, the editor of the

British Bee Journal, for the same day. Mr. Cowan, who often spends the summer in Switzerland, had accepted the invitation to meet with us, and arrived from London, punctually at 9 a.m., the next day. The trip from London requires a little less than 24 hours. The reader may imagine how glad we were to meet him, and how proud we felt that he had selected this date for his visit, since it looked as if our presence might have had some influence on his determination.

It was a great day for us. The chalet is in one of the prettiest spots along Lake Geneva, and in full view of Mont Blanc. Our hosts had just come home from the mountain village mentioned in the May number, Gryon, where they spend the hot months (if anything can be called "hot" in Switzerland). The flower beds were all aglow, the pond lilies in full bloom, and the walks freshly raked. The company was good, and we give a picture of the little party. Of course we talked bees. Mr. Cowan, like Mr. and Mrs. Bertrand, speaks French or English at your pleasure, and you cannot show him a flower of which he is unable to tell the scientific name. Most of our readers have heard of his three leading works on bees: "The British Beekeeper's Guide Book," a practical work; "The Honey Bee," an exhaustive treatise on the anatomy and natural history of the bee; and "Wax Craft," a thorough work on beeswax, its uses and its adulterations.

Some of his books have had the honor of eight translations.

Mr. Cowan gave me some valuable information concerning the Caucasian bee, and the reason why some bees of this race appear as if they were mixed with Italians. He had made enquiries and received the following information from Mr. Gorbacheff, an official of the sericultural station of Caucasus at Tiflis: "The bees of Erivan (Transcaucasia south of Tiflis) are distinguished by their bright yellow-orange color, but the typical bee of the Caucasus mountains is of a dull gray color. The bees of north Caucasus are a mixture of the gray with the bees of Persia, which are also of bright color. The bee of Persia is a typical bee of the South, and in Caucasus is known under the name of 'bee of Lencoran.' Some beekeepers of Russia and Europe make the mistake of calling these bees 'Caucasians.' They are lazy, wicked, and great robbers. The production of queens of this species is not large.

"On the contrary, the pure bees of the mountains of Caucasus are gentle, splendid workers, and their queens are great layers."

So when we rear Caucasian bees, if we want them pure, we must insist on the "dull gray color." Had our time been unlimited, and the way to the Caucasus unhampered by the Balkan war then raging, I should have liked to make an excursion to that country, for everybody who has tried the Caucasians praises them. But in our four months of vacation we could only follow a narrow little path through France, Switzerland and Italy. We still had the entire Italian trip before us, and had to refuse some very kind invitations from half a dozen beekeepers of Great Britain, including a hearty one from Mr. Cowan, who readily excused us. He understood that if we went through Great Britain, we must be prepared to spend a month or so there, and it was out of the question. It will be for some future date.

Mr. Forestier, a noted entomologist present (the fourth gentleman from the left, standing, page 345), told me that he had often dissected bees that had died of the May disease, and



"LE CHALET" OF MR. BERTRAND

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found no nosema in them. Mr. White had reported the same from sample bees sent to him by me. Yet, was it not in the May disease that the German scientists first found the nosema? This parasite was also reported as found in the Isle-of-Wight disease. We have much to learn still. Mr. Cowan thought that the nosema was difficult to detect in dead bees. He was inclined to believe that it caused both the Isle-of-Wight disease and the May disease or paralysis, as it is called in America.

The information already received by me that the Italian mixed with the Swiss bees, or the Swiss-bred Italians, are the best for that climate, was confirmed by nearly every man present, and they are all leading beekeepers. Messrs. Bertrand, Odier, Warnery, Gautier, Bignens, Paintard and Foresier were unanimous on this point. In our own country how do northern-bred Italians compare with the southern bred? Have any of our beekeepers made any comparative experiments?

On the following day we had the surprise of a visit from our Lyon friend, Mr. Vibert, who was spending his vacation on the south shore of the lake. He knew we were to be there about that time and came, relying on the kind hospitality of Mr. Bertrand, to spend a few hours with us again. An hour after his arrival, a stranger came, and was announced as Mr. Ivan Louis Melikov, a bacteriologist at the Pasteur Institute of Paris. The bee association of Haute Savoie had asked for help in the study of the bacillus of foulbrood. This gentleman had come to them and had at once been directed to Mr. Bertrand for information. Our readers know of the long experience our friend has had with foulbrood. He had it in his own apiary, fought it with drugs and finally vanquished it. He translated F. C. Harrison's study of foulbrood, and wrote another study on it himself. Mr. Cowan, who was there, is also an authority on diseases. Mr. Melikov was evidently well posted on our host's reputation, for he paid him the neat compliment of saying that he was "the most celebrated authority on bees in the entire world." The com-

pliment was fully deserved, though Mr. Bertrand modestly declined it.

Mr. Vibert called our attention to the number of nationalities gathered together in this little party. Mr. Melikov is of Russian nationality, so we had Russia, England, Switzerland, France and America represented. We enjoyed the day, and Mr. Melikov invited me to call on him at the Pasteur Institute on my return to Paris. He was in hopes of being able to prepare some studies of foulbrood in the meantime. Mr. Cowan said that, in his opinion, there are climatic differences between samples of the bacilli of Europe and America, and suggested that bacillus brandenbourgensis, bacillus burri and bacillus larvae of White were perhaps identical.

The following morning I went down into the little park early and found Mr. Bertrand there in a mournful mood. We were to leave them that morning for the Italian trip. He said: "This is a melancholy morning for me, for I don't know whether I will ever see you again. Your father was one of my best friends, and I re-read some of his letters often. Yet I have never met him. Our friendship grew through correspondence."

It was a sad parting on both sides. We were glad that Mr. Cowan expected to remain a few days, as it made it less lonely for our old friends. We took the train at 10 o'clock for Bellinzona and Milan. This was the last episode of our month in Switzerland. It had been a happy month.

CONTRIBUTED ARTICLES~

Honey as a Remedy

BY H. SPUHLER.

MR. CREPIEUX-JAMIN, treating this subject in an article on page 58 of the February number of the Bee Journal, comes to the conclusion that "honey is a first-class food, but a medicine of low value." In view of this discredit of honey as a remedy, I take the liberty of supporting the opposite view, based mainly upon my experiments made while retailing honey.

Mr. Crépieux-Jamin is a physician of the bacteriological school which maintains that a great number of diseases are caused by microbes, and that each disease requires special remedies. On the other side are found doctors who claim that the microbes are not the original cause, but secondary phenomena, and that the true cause is the weakening of the organism and the lack of "force of resistance"; that in

view of this, instead of using remedies we must strengthen the organs and procure to them the best sanitary conditions. As principal factors upon which our health depends are food, air, light, water, action and rest. These represent also the most efficacious means of re-establishing health. There are in Europe, especially in Germany in Austria and in Switzerland, a large number of physicians who, with great success, treat all diseases without medicines other than these natural factors, especially food diet and water—cold, warm, and in the shape of steam. There are a number of establishments run according to these principles and succeeding finely.

It is well recognized that a large number of diseases are caused by bad methods of nourishment, and it is of importance for sick people to be acquainted with a first-class aliment distinguished by its digestibility, strengthening the organism and presenting for that reason an important remedy. Honey is perhaps the oldest remedy known; it has been approved for centuries, and it will probably be used for the benefit of the sick when many of the present remedies will have long been forgotten forever. The following data refer to a few cures that I have observed myself and prove its efficacy:

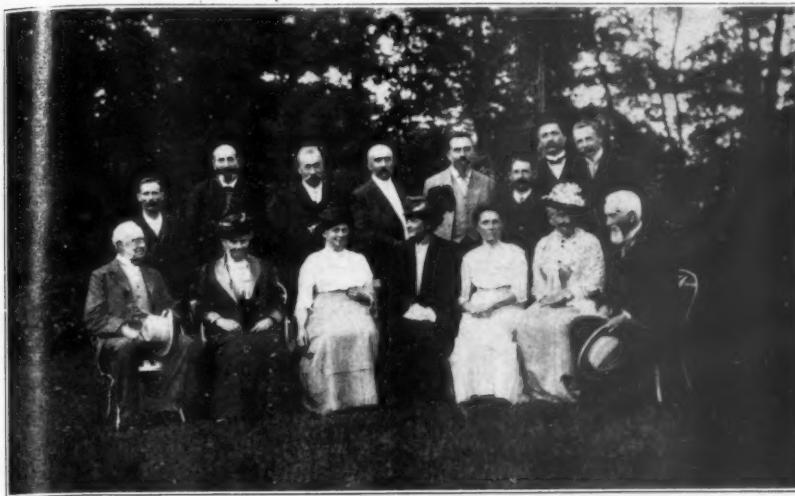
Cure of anemia. An 8-year-old girl suffered so seriously of this disease that she was confined to her bed. A long medical treatment had no success and the parents were in despair. At last the patient was treated by a diet of honey dissolved in milk. After a few weeks she was enough stronger to be able to accompany her mother when she came to my house to purchase the honey. At the end of two months she was able to return to school.

A girl of 20, employed in a spinning-mill, was losing her strength from day to day. Fearing serious sickness, she applied for membership in a mutual insurance against disease, but owing to her condition of health, she was refused admission. The trouble in-



THE CASTLE OF NYON

American Bee Journal



THE GENTLEMAN AND LADY AT THE RIGHT WERE OUR HOSTS, MR. AND MRS. BERTRAND. ON THE EXTREME LEFT SITTING IS MR. THOS. W. COWAN, SENIOR EDITOR OF THE BRITISH BEE JOURNAL.

creased; she had to seek the help of physicians, and was finally compelled to enter a hospital, where she hoped to be cured. She was advised to try a honey cure. She did so, and was soon able to resume her work. She was even accepted as member of the assurance company to which she had formerly applied and had been refused.

Stomach complaints. A woman of 60 had grievous stomach pains which became at times intolerable, and no medicines could allay them. She had recourse to honey which brought her almost instantaneous relief in the worst crisis.

Asthma. An asthmatic lady neighbor, regularly buying honey from me, often declared that this was the only thing which brought her any relief.

Pulmonary affections. A man of 40, keeping an inn, was suffering from lung trouble. He consulted without relief all the neighboring doctors, and later, professors and specialists of the capital. He finally spent some time in an establishment where this disease is treated with water and dieting, but all was in vain. The disease was increasing. One day he met a man who advised him to try a honey cure, asserting that such a treatment had saved him from similar conditions. He followed the advice and was cured in a few months, taking three times per day a spoonful of honey dissolved in milk. He died two years ago at the age of 70.

Rheumatism. I know of a number of cases where men were cured of rheumatism by keeping bees and eating honey.

The above cases prove that honey is not only a healthy food but a valuable remedy. This is recognized and acknowledged by physicians. One of these said to me: "Honey has never failed to help in children diseases." Another physician of renown who possesses an establishment for children uses honey on a large scale, and has given the following beautiful statement: "Honey is not only a useful human remedy, it is also useful in veterinary practice. The country people often use it for this purpose,

and one of my friends who is a capable veterinarian, has largely used it in his profession.

If, as I have shown, honey possesses excellent alimentary and salutary qualities, it is the duty of the beekeepers to emphasize this fact by disseminating it and increasing the demand of honey, ambrosia of which Solomon said: "Eat thou honey, my son, for it is good."

Zurich, Switzerland.

Coumarin and the "Bitter Principle"

BY A. F. BONNEY.

It has been some months since I began investigation of the so-called bitter principle of sweet clover, led to do so by finding that Mr. Westgate, Agronomist in charge of Clover Investigations, with headquarters in Washington, D. C., had changed his mind about wanting sweet clover without the bitter taste. He had, with others, theorized that a tasteless sweet clover would take the place of the other trifoliate, as alfalfa and white clover for pasture and hay. However, it was next theorized that the "bitter principle" was an element which prevented the sweet clover from causing "bloat" in cattle, said disorder being acute fermentive indigestion, with no other evidence than that cattle which ate the sweet clover did not have the bloat. They did not stop to think that not all animals which eat of white clover do bloat, and that probably 100,000 critters eat white clover where one consumes sweet clover.

In other words, we do not know that sweet clover will not bloat cattle; therefore, we cannot know that it is the bitter principle of sweet clover which prevents indigestion. Why is it not the coumarin itself? It is more abundant.

Mr. Westgate took the first opportunity to have an analysis made of some sweet clovers, and sent me some very small samples. I could not analyze

such small masses, so sent them to my friend, Mr. Francis, chemist for Park, Davis & Co., probably the largest chemical and biological establishment in the world. His letter attached shows that he was in the same quandary as myself. Unfortunately, he does not seem to promise an analysis of a bale of the sweet clover hay, and students will have to be satisfied with the light I have so far been enabled to throw on the subject.

In the meantime, the farmers all over the United States are losing their hatred of sweet clover, and I have not been threatened with arrest for some four years in connection with the fragrant weed.

The attached letters will tell the rest of the story.

Buck Grove, Iowa.

DR. A. F. BONNEY, Buck Grove, Iowa.—

Dear Sir:—I have had extracts made of coumarin from both *Melilotus alba* and *M. officinalis*, and am sending the same under separate cover. The crystals certainly taste like the bitter principle in the *Melilotus*, and I have no reason now to think that these crystals are other than the coumarin. The green plants were distilled by steam, and the resulting distillate was extracted with ether, and the solution allowed to evaporate.

The crystals from *Melilotus alba* appearing gave the bitter taste of coumarin, and showed a melting point of 67 degrees, which is exactly what coumarin crystals should show. The *Melilotus officinalis* crystals gave a melting point 3 degrees lower than this, owing apparently to the presence of a volatile oil. There is also in *Melilotus* a presence called Melilotic acid. This has an astringent flavor, and probably combines with the coumarin to give the distinctive taste to *Melilotus*. J. M. WESTGATE, Agronomist in charge of Clover Investigations.

DR. A. F. BONNEY, Buck Grove, Iowa.—

My Dear Dr. Bonney:—Your letter concerning coumarin, with the attached report from Mr. Westgate, of the Department of Agriculture, was received several weeks ago, as were the small samples of crystalline substances extracted from the *Melilotus*.

Upon reading your letter I hoped that the samples of crystals extracted from the two plants might be sufficiently large in quantity to permit of careful purification in our own laboratory, which would enable us to determine its constitution, melting points, etc.

As you know, however, any work along the line of purification was absolutely hopeless, as there was the very smallest quantity of material available, and I assume that this lack of material is one reason why Mr. Westgate could not prosecute his investigation to more definite results.

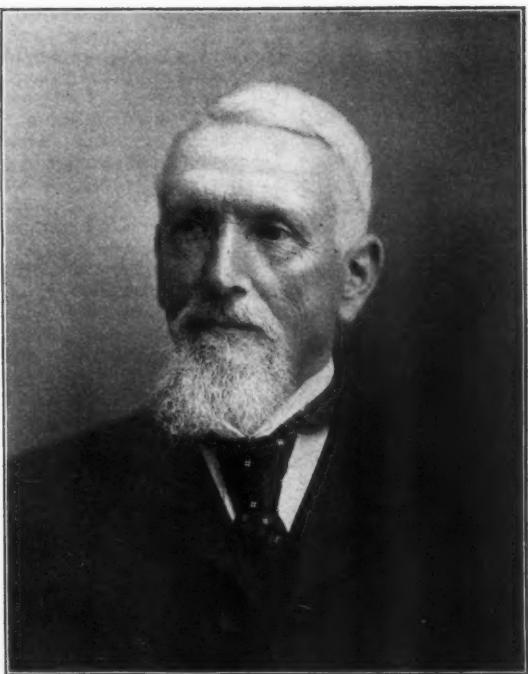
Now there is no doubt that coumarin is a prominent and important ingredient in both species of sweet clover; moreover, there is no doubt in my mind but that the presence of this substance in the plant, and consequently in the bloom, is responsible in a large measure for the peculiar and exceedingly pleasant flavor of the sweet clover honey.

Mr. Westgate is in error in assuming that coumarin is bitter. The substance in an absolutely pure form chemically is very easily obtainable, and exists in the form of white crystals, which have the peculiar odor and taste characteristic of coumarin, and in its concentrated form also has a pearly taste in the mouth. If the substance is pure, however, there is not the slightest suggestion of bitterness.

As regards this important matter which you have brought up, namely, that one species of sweet clover differs from the other, no light is given us by this report nor by the examination of these minute samples. It is true that one of the samples of crystals does have a decidedly bitterish taste, whereas the other does not, but the samples were so small and impure that this was not an evidence that the coumarin extracted from the sample of sweet clover contained none of the characteristic bitter substances of the plant, whereas both the coumarin and the bitter were extracted from the second plant.

What this bitter substance is can only be determined by a careful chemical analysis of a large quantity of the drug. My experi-

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MR. E. BERTRAND

ence has shown that it will be necessary to start with a bale of the dry sweet clover, and one would probably have to extract as much as 300 or 400 pounds of the "clover hay." With this amount of material it could be extracted with ether or some similar solvent, and then by well-known methods of analysis the coumarin could be separated in pure form, and the identity of the bitter substance might also at the same time be determined. There is absolutely no use in attempting to solve this problem with a small quantity of drug.

PARKE, DAVIS & COMPANY.
J. M. Francis.

Shipping Comb Honey by Express

BY C. T. OHLINGER.

AFTER several years of experimenting with different kinds of packages, such as glass shipping cases, corrugated paper boxes, tin boxes, as containers for comb honey to go by express, I learned that a little deception will insure safe arrival of the fragile article. Since the days of the parcel post, the rush of business of our dear express companies is over. Yet one is not sure of what will become of a package of comb honey entrusted to the tender mercies of the notorious rough handlers in the employ of the express companies.

It is a well-known fact that no attention is paid to such notices as "Comb Honey," "Handle with Care," "Fragile," "This Side Up," etc. The side that is to go up is sure to go down. When goods arrive in bad order you may put in a claim for damages and wait until the claim is adjusted. There is one package, however, which conjures up thoughts of careful handling in the minds of express and baggage men, i.e., an egg crate. I have been using them several seasons for shipping comb honey by express to custo-

mers who want from 25 to 50 sections at a time.

I pack 48 4x5 sections in a crate, 24 on each side of the partition. There will be two rows of 8 sections on the bottom—the sections standing lengthwise with the crate—and one row of 8 on top next to the partition board. This brings the weight to the center of the crate. The weight of the whole crate will be about the same as that of a full crate of eggs. The empty space is filled out with newspapers to prevent the sections from shifting. I purposely omit the marks "Comb Honey" on the box. The agent is told that I am shipping comb honey in order to get the proper receipt. But the men who handle the crate in transit get the idea that they are handling eggs, and everything goes well. Sometimes I fill an order for eggs and comb honey. Both go into the same box as a mixed shipment. The egg crate has solved the problem of getting small shipments of comb honey to private parties safely and quickly.

Angelica, N. Y.

Honey and Biology

BY J. A. HEBERLE, B. S.

(Based on a lecture of Dr. Thoeni, published in the *Schweizerische Bienezeitung*.)

(CONTINUED FROM PAGE 315.)

Twas Prof. Langer, of Graz, who first proved that the diastase ferment in honey, which we know changes starch into dextrin is secreted by the honey bee. This has been proven by the serological method of differentiating albumen, of which more will be said.

Auzinger was the first to experiment with solutions of honey to determine the power of the ferments. He used

the same method that Koning used to determine the diastase in milk. The method is as follows: Take 10 c.c. of honey solution 1:2, add 1 c.c. of a solution of starch, strength 1 percent, leave one hour in the water bath at a temperature of 45 degrees C. If the honey solution contains diastase, all the starch will be changed to sugar. To test this add 1 c.c. of a solution of potassium iodide, shake well and notice the color. If all the starch has been changed, the color will be but little darker than the solution taken for the experiment; if no starch has been changed, the color will be a deep black blue.

The results obtained with this method tested by various institutions, may be summarized as follows: Most of the samples of genuine extracted honey, when used in quantities mentioned, gave colors from a bright olive green to a light brown.

Boiled honey solutions showed a deep blue to a black-blue color because they contained no active ferments. Heated honeys show the following colors according to the elevation of the temperature and the time of exposure: Red-brown, brown-olive, bright blue-green, blue-green, deep blue. Artificial honeys show uniformly a deep black-blue because they contain no ferments. According to the experiments of Leuenberger, on the influence of heat on honey, in regard to the diastase reaction, only temperatures above 90 degrees C. caused a darker color than that of the same honey not heated. Besides the ferments, there is a specific albumen present in honey. Its presence is also proven by a biological method.

THE QUANTITATIVE PRECIPITATE REACTION.

Prof. Langer has also laid the foundation to this method. It has been said that the ferments are bound to the albumen molecules, which really means they are a part of the albumen. To obtain the ferments from any solution, reagents that precipitate albumen, as alcohol, ammonium sulphate, etc., are used. Such a precipitate contains, besides the ferments, all the albuminous bodies. He found that the albumen in the honey is of animal origin—that it is from the bee. To prove this he used the serological method called the "precipitate reaction." Since this is one of the most important biological methods, a short explanation might interest the readers.

If a solution from the albumen of a hen's egg be injected a few times in a rabbit, there will be formed, in the blood of this rabbit, a substance called the "precipitate." If blood from this rabbit is taken, and the red corpuscles separated, an almost clear solution—the serum—is obtained. This serum, through the injection, has acquired the singular property of giving a precipitate with a solution of albumen from a hen's egg, but not with any other albumen, not even with the albumen from a duck or goose egg. A precipitate with the serum is only obtained when the albuminous solution is from the same source as the solution used for the injection. With this method it is easy to recognize human blood from that of animals, or blood of the ox from that of the horse, etc.

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In order to determine the source of albumen in honey, Prof. Langer injected in a rabbit a solution of albumen from honey. The honey-albumen serum gave a precipitate not only with a solution of albumen from honey, but also with watery extracts of bee heads, the larvae and the food (chime? chile?) with which the bees feed the young brood. The same results were obtained when, instead of a solution of honey albumen, the watery extracts from bee heads were used for the injection. Not fully satisfied with this, Prof. Langer made watery extracts from flowers and seeds of plants from which the bees gather pollen and nectar. With these extracts he could in no instance obtain a precipitate with serum of honey albumen or bee-heads extract. Finally he used water extracts of triturated pollen for injection; the serum obtained gave a precipitate with pollen extracts, but not with honey albumen, etc. Thus it was proven that honey contains albumen which is secreted by the bees, and while transforming nectar into honey is incorporated or mixed with it.

It was found that the proportion of albumen in honey varies comparatively little, and, further, that the "precipitate reaction," when the right amount and the right concentration are used, gives results that may quantitatively be useful.

The honey albumen serums are not all equal; therefore, in each analysis a genuine honey has to be tested with the other samples, as a check.

To obtain the serum, the use of queen-cell contents has been found the most convenient.

In making the test, honey solutions are prepared of 10 percent, 2 percent, and 1 percent strength; 1 c. c. of each is used. For the 10 percent solution, 0.5 c. c.; for the 2 percent solution, 0.2, and for the 1 percent solution, 0.2 c. c. of the serum is used and a drop of toluol is added to each sample to check bacterial growth. After a thorough shaking, the samples are allowed to stand five hours at a temperature of 35 degrees C. At the expiration of that time the reaction is considered complete. Specially constructed glass tubes, narrow at the bottom and graduated, are used. The samples are for five minutes rotated in a centrifugal apparatus, so the precipitate will collect at the bottom in uniform density, and the quantum is measured or read off.

The results so far obtained show that honey from the forest, from a fir tree, has a little less albumen than that from the nectar of flowers. Probably honeydew will do the same.

Sugar fed to bees and extracted showed about one-half as much albumen as honey. This the beekeepers should bear in mind. Sugar has no albumen; it is the bees who supply that, which, no doubt, is detrimental to the bees when feeding large quantities of sugar. It may also be pointed out, that honey is more than a mere sweet. It can be assimilated without further work on the digestive organs. Sugar must first be inverted. In addition it contains a great variety of other substances, ethereal oils, albumen, etc., while sugar is a pure hydrocarbon, a

nutriment, but not as wholesome (?), salubrious (?) as honey.

Kempten, Bavaria, Germany.

Beekeepers I Have Known— "W. S. Pangburn"

BY FRANK C. PELLETT.

THERE are beekeeping farmers and again there are farming beekeepers. Shelly Pangburn belongs to the latter class. Although he farms on quite an extensive scale, his bees are not neglected, and beekeeping is not with him a side line.

Until a few years ago friend Pangburn was a painter by trade, but laying aside his brushes he moved to the country and bought a farm overlooking the town of Center Junction, Iowa. Being a great hustler and a good manager he has prospered from the first, and now finds himself in very comfortable circumstances. His is one of the neatest apiaries in Iowa, and he has every facility for lightening the labor of caring for his honey crop. The honey house is composed of three large rooms. In one end is the work shop for assembling hives and supplies, and in the other end the extracting room. The center room is used for the engine and also contains the cream separator, for the Pangburns also have a fine dairy herd. There is a power machine also, which robs wash day of its terrors for the women of the household.

Mr. Pangburn has hit on the best plan of liquefying candied honey that I have seen for the average beekeeper's use. He bought a feed cooker from one of the catalog houses for \$11 that just fills the bill. The tank is the right size for eight 60-pound cans. He has made a wooden crate, as shown in the photograph, which lifts the cans about 4 inches from the bottom of the tank. He puts 3 or 4 inches of water

in the bottom of the tank, but not enough to come up around the cans. The cover is shut down and the honey heated by steam instead of hot water. A small hole in the top allows a thermometer to be seen at any time, and in case the heat arises too high it can be lowered instantly by raising the cover and allowing the steam to escape.

The photograph shows the outfit as it stands in the honey house. Very little fuel is required, and as much honey can be melted at one time as the ordinary beekeeper will have occasion to use. It seems to me that our supply dealers might look into this proposition and offer this outfit in their catalogs.

The Pangburn home is one of culture and refinement with music and good reading matter much in evidence. Mrs. Pangburn has a little the best of the family division, for there are three attractive daughters and only two sons. It sometimes happens, however, in cases like this, that the girls leave the nest sooner than the boys, so it seems to be a fair division after all. The youngest son seems very much interested in the bees, and bids fair to be an unusual help to his father in the apiary. He shows a knowledge of beekeeping rare in children much older than he.

Any live beekeeper will enjoy a visit to the Pangburn apiary.
Atlantic, Iowa.

Methods of Queen Introduction

BY J. E. HAND.

THE successful introduction of alien queens has been a problem for the amateur and the professional, as well as for the novice and the expert throughout the beekeeping world. Experimenters have discovered that while there are seasons and conditions when alien queens may be given to queenless bees direct, with impunity, some method of introduction is imperative



THE PANGBURN HOME AT CENTER JUNCTION, IOWA

American Bee Journal



W. S. PANGBURN AND HIS SEVEN-YEAR-OLD SON IN THE APIARY

to prepare alien queens for a safe reception by a queenless colony. The knowledge that the acts of bees within the hive are guided chiefly by the sense of smell, has led to the almost universal opinion that odor is the basic principle in queen introduction. The theory is that each colony has its peculiar odor by which individual members are recognized and distinguished from individuals of other colonies.

THE TRANSMISSION OF ODOR.

This theory induced experimenters to search for some economical method of transmitting the colony odor to queens. This led to the discovery of

two methods of odor transmission, the smoke method and the cage method, both of which were described in Doolittle's book on queen-rearing, published more than a quarter century ago, and both are in vogue at the present time.—[See pages 75 and 76 of "Doolittle's Queen-Rearing."—ED.]

THE CAGE METHOD.

The cage method is very simple, and yet close observation concerning the attitude and behavior of bees toward a caged queen is essential to success with this method. It consists of suspending the cage containing the queen over a space between the combs, ex-

posing the wire-cloth side to the bees, leaving it there until the caged queen shall have acquired the colony odor, after which she will be accepted without pailey. Perfect success is assured by this method only when the queen remains caged until the colony odor is acquired; thousands of queens are sacrificed every season because ignorant beekeepers, unmindful of the hostile attitude toward the caged queen, allow them to eat out the candy and release her before the odor is transmitted; an operation that requires more time with different queens.

When friendly relations are established by the transmission of odor, a radical change takes place, and instead of hostile demonstrations she now receives affectionate caresses, and will be welcomed with eagerness. This change in the attitude of bees toward a caged queen is unerringly manifest to the practiced eye of the student of bee-nature, and he will keep her caged until the change occurs, and will seldom lose a queen.

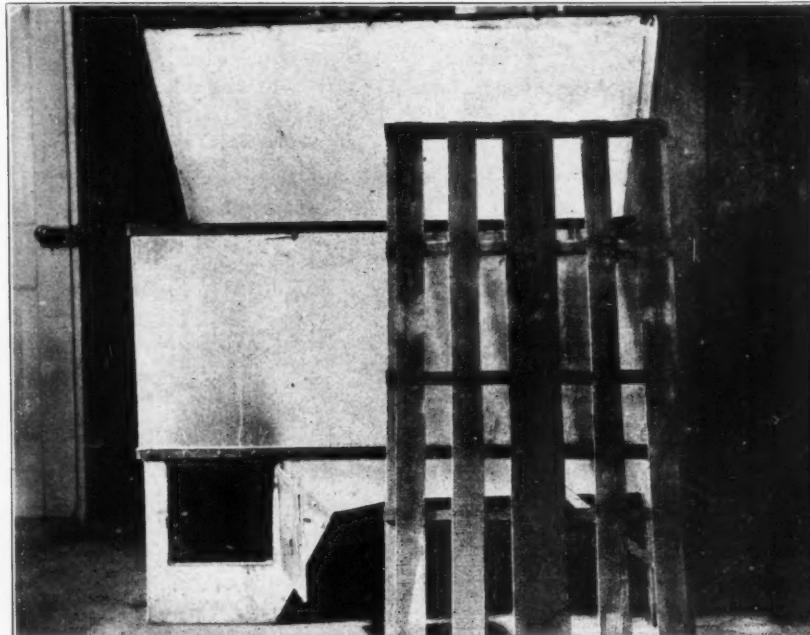
Daily examination is necessary. If they are clustered thickly on the cage, biting the wire-cloth, and exhibiting a general attitude of anger and resentment, return the cage and repeat the operation daily until the bees cease to take any notice of the intruder; when this change comes, it is safe to release the queen. We remove most of the candy and allow the bees to do the rest.

Approximately 80 percent of queens will be accepted within 48 hours, and the remainder will range from that time up to a week or more; hence 20 percent of the queens are sacrificed by permitting the bees to eat the candy and release them before the colony odor is acquired. If these instructions are rigidly observed, there is little excuse for losing a queen by the cage method, for I doubt if there ever was a queen that could not be successfully introduced by this method if sufficient time is allowed for the transmission of odor.

SMOKE METHOD OF ODOR TRANSMISSION

During the past quarter century, various methods have been in vogue by which odor is transmitted through the agency of smoke. Some have accomplished it by blowing smoke into the entrance, accompanied by drumming on the hives, thus causing the bees to roar in distress and fright; the queen is then run in, followed by a few more puffs of smoke. Others omit the drumming, and depend upon smoke exclusively, using more of it, and closing the hive for a few minutes; while others have been equally successful in the moderate use of tobacco smoke. This is perhaps the most effective, having an odor so pungent that little is required for the transmission of it. While the basic principle is the same, the two methods are widely different, for in the latter the colony odor is transmitted to the entire contents of the hive, including the alien queen. The smoke odor is transmitted in five minutes, while several days are sometimes required to transmit the colony odor to a caged queen.

There are two important factors involved in the smoke method, the rapid unifying of odors within the hive, and



PANGBURN'S STEAM OUTFIT FOR LIQUEFYING HONEY

American Bee Journal



Canadians and Americans celebrating July 1 at the Finca of Mr. Rolando Kendall, near Holguin, Cuba. Mr. Kendall, besides being a fruit grower, is a "bee bug." Twenty colonies bought July 26, 1913, have given an average of over 10 gallons per colony and 100 percent increase.—D. W. MILLAR.

the instantaneous perversion of the sense of smell, resulting from inhaling smoke. Undoubtedly these two factors are directly responsible for the success of the smoke method. The excessive inhalation of smoke, or the assimilation of odoriferous vegetables, such as onions, garlic, etc., will render the organs of smell and taste unreliable temporarily in humans, and why not in bees?

While some have made an attempt to ignore the part that odor performs in the domestic economy of the hive, that element is in the minority, and the consensus of opinion among progressive American beekeepers is that odor transmission is the basic principle of successful queen introduction.

Birmingham, Ohio.

Ancient Apiculture—Aristotle

BY E. M. MACDONALD.

WHEN we read over the works of old beekeepers, the wonder is not that they knew so little of bees and their ways, but that they knew so much. Aristotle lived some 2300 years ago, having been born in 384 B. C. in Grecian Turkey. He seems to have been an omnivorous reader and amassed a vast stock of facts gleaned from others and also from the fruits of his own observations. His classification forms the groundwork of later labors. He was the earliest to note and describe the four membranous wings of bees and other insects, he described the various parts of their six legs, and he was the first to accord to the two magic working horns or feelers in front of the head, the name of antennae, "because they hold them forth before."

He gives the first and best summary of Greek knowledge of the structure and habits of the bee, and his observations served as a model for subsequent writers, even until a comparatively recent period. Virgil, Pliny and Columella drew largely on his facts and fancies, and even our own classic But-

ler had a great admiration for this ancient scientist, for he tells us that Aristotle "discovered more at large about bees than he did on any other living creatures."

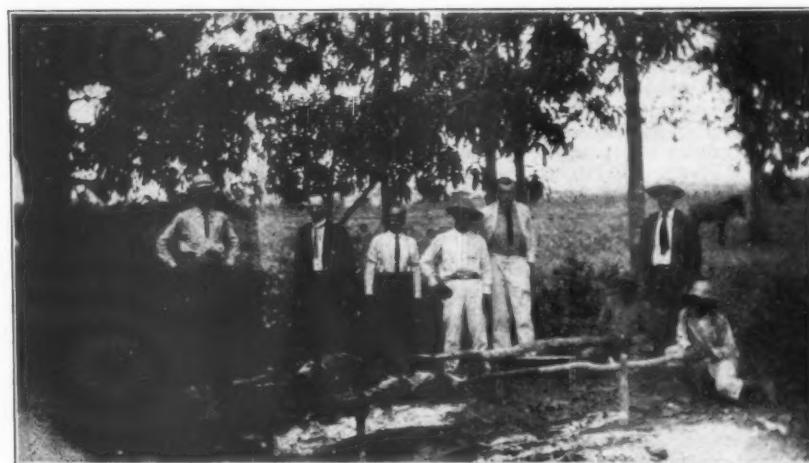
The generation of bees was a great puzzle to this author as well as to all early bee writers. He says, "All are not agreed about the generation of bees. Some say they collect them from the flowers, others that the rulers (the King then, our Queen) produce the young of the bees. By some they are called the mother-bees as if they were the parents of the rest, and they agree that unless the ruler is present, drones only are produced, and no worker-bees. Others affirm that drones are males and bees females." How near the actual truth these ancient beekeepers were!

He observed the eggs in the cells, and even noted that at first they lay in an angular position and change later. From this egg proceeded a worm (larva) and he had at least a dim idea of the feeding process after the egg hatched. The egg at first

increased by its own powers, containing as it did the material "necessary for augmentation." Honey is placed beside the larvae for conveniently transmitting it to the brood-cells, and they breed best when honey is coming in plentifully. He noticed the royal jelly and looked on it as matter for generation as well as for augmentation. Queen cells were observed in hives to the number of six or seven before swarming. He noticed that they were destroyed later, also that supernumerary queens were killed off as useless, if not indeed mischievous.

Aristotle accorded to bees the organs of sight, smell, touch, taste, but had doubts of the sense of hearing, and he held that they cannot speak. "Insects have neither voice nor speech, but make a sound with the air within them (spiracles), not with that which is external, but they make a sound with the membrane beneath the divisions of the body." "They can smell from a great distance, and can scent honey or fields of nectar when very far away. Any contamination in the hive is an offence, and they carry out dead bees before they display signs of putrefaction, while they void their excrement outside so that it may not contaminate the hive atmosphere. They dislike all offensive smells and the scent of alcoholics and readily sting persons who use such things." He taught his successors a bad lesson in stating that bees were weak in the sense of sight. We moderns must marvel at the statement as this is one of the points in which they are most perfect.

He was much puzzled if drones are males why they should be in subjection to their females, "because nature never gives females the power to defend themselves and destroy the males." Drones, he declares, are useless—yet because of their presence bees are more industrious and hives, in their absence at the right time, fail to do their best work. "Drones are thieves." Beekeepers even at this early date had a species of drone trap or excluder. They narrowed the en-



Roasting the pig at Mr. Kendall's July 1, 1914. The animal is drawn and a stick passed through him lengthwise. He is then slowly turned before the fire until done. It is a long job, but "mighty fine doings."—D. W. MILLAR.

American Bee Journal

trance to keep them out and thus rid the hives of this "useless bee."

"Honey falls from the air and generally none is produced before the rising of the Pleiades" (Pliny calls it the spittle of the stars). This idea lasted long. "Wax," he tells us "is made from the flowers," referring no doubt to the pollen with which it was long confounded. "Bees breed their sweet kind" from the amiable matter found in the flowers. Honey came from the air or appeared as a dew—these were the ancient beliefs. Our author commends the whitest honey showing that their "dew" and ours differ at least in color. Aristotle believed in a division of labor among the bees much the same as that so poetically described in Shakespeare: "They have a king and officers of sorts, etc."

He tells us that in his time bees stung animals as large as horses causing death at times. "When they sting anything they perish for they cannot withdraw their sting from the wound without tearing their own entrails, but they are frequently saved if the person presses the sting from the wound." The efficacy of the sting as a weapon of offense and defence was well known and thoroughly appreciated in these early times. Particularly is this brought under our notice when he deals with bees' enemies. Ever since his day the swallow has borne the reproach of being a deadly enemy; wasps are also blamed for being very destructive, while the toad is accused of blowing in at the entrance to entice the bees to come out and be eaten. Old writers always produce a long list of deadly enemies of bees, but I am pleased to put on record the fact that man was not one of these at that time in ancient Greece, for he tells us distinctly that their keepers "took what honey they could spare and did not kill them." We learn that they knew how to smoke bees, and also how to brimstone them even at that early date, but it says much for their skill and humanity to know that they only took the surplus as their share.

A warm, dry season, he considered, was the best for honey and a moist one for swarms. Swarms, he considered, were made up mostly of young bees. He mentions the peculiar note of swarming and gives us a graphic picture of the hurly-burly in and outside the hive while the bees are rushing about. He was one of the first to take notice of "ringing" or "tanging" bees and to condemn it. "They appear to have pleasure in noises, so they say that they collect them into their hives by striking vessels and making noises." He doubts if bees can hear, and therefore concludes they may collect either from pleasure or from fear, but not on account of the ringing. He does not credit that bees can be generated from the carcasses of dead animals, because they shun everything that is putrid or unclean and love what is clean.

The belief in bees as weather prophets is very ancient. Aristotle



"LOMA DE MIEL" APIARY AT HOLGUIN, CUBA.

The past year, in my particular location, has been the poorest I ever saw in Cuba, on account of dry weather, but I averaged a little better than 10 gallons of extracted honey per colony, and bees are in fine shape now.—D. W. MILLAR.

says: "Bees discover the approach of cold weather and of rain and they will not leave the hive even if the day is fine but remain occupied inside; and by this their keepers know that they expect severe weather."

Aristotle is the most scientific of ancient beekeepers, he liked to verify even his quotations and he is very guarded in making direct statements; he seems to examine everyone from a scientific standpoint. The beekeeping section of his "Natural History" is the best known and the most trustworthy of ancient works of nature as a whole, and especially on apiculture.

It is doubtful if he himself was an active beekeeper. He tells us of several sources from which he derived his information — Aristomachis of Soli, for instance, who for a period of fifty-eight years did nothing else but study the bees, and also Philiseus who passed his life apart from his fellow men tending his bees, and living by the fruits of their labors. Banff, Scotland.

That Chaff Hive

BY J. E. HAND.

THAT chaff hive article in the July number of the American Bee Journal, page 240, by Dr. Bonney, calls for some explanation, and possibly some correction, especially his statement that I advocated a hive only four inches deep in 1907. I am inclined to be lenient with him, however, for he evidently does not understand that a single division of a sectional hive does not constitute a hive, but is only part of a hive, and that an eight frame sectional hive, composed of shallow divisions, may be larger than a fixed hive of sixteen

frame capacity. It is to be regretted, however, that so much time and space is required to explain a matter that should be apparent to a novice, and doubly so, to one who poses as an authority upon subjects pertaining to the economics of beehive architecture. Evidently his memory needs sharpening, for, in spite of his statement concerning our alleged four inch hive, the smallest division of a hive that we ever used was over five inches deep, and three divisions constituted a regular brood chamber over fifteen inches deep; this is the four (?) inch hive that Dr. Bonney is worrying about, but we cannot see what that hive has to do with the convertible method of wintering bees.

Again, Dr. Bonney is in error in assuming that we use eight frame supers, for our brood chambers and supers are alike and interchangeable, furthermore, his suggested modification of our convertible hive introduces undesirable complications that weaken the protection at critical points, and leave one side of the winter nest unprotected by packing. The sixteen frame hive, with the eight frame inner chamber is an economical solution of the wintering problem, for it is a single wall hive in summer, and a double wall hive in winter, providing perfect winter protection at half the cost of chaff hives. My opinion concerning the status of chaff hives, past, and present, is based on personal experience, and personal observation, covering a period of more than a quarter century. In 1880 I purchased my first chaff hives for \$1.50 in the flat, they were two story hives, double walled throughout, with a capacity for fourteen frames above, and ten below, and were undoubtedly the best wintering hives ever put on the market in this country. Mean-

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time, however, they have been reduced to a single story, with half as much material and protection as formerly, and yet they are sold today for \$3.25 in the flat, without any up-into the error of assuming that the per story. Dr. Bonney objects to my sectional hive is a small hive. calling them "deteriorating in quality," Birmingham, Ohio.



GEO. S. CRONE IN HIS APIARY AT BROWNING, ILL.

DR. MILLER'S ANSWERS-

Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

More Honey Without Swarms—Requeening

1. I started beekeeping last year with a three frame Neclesus. This year that colony swarmed three times. I united the second and third swarms. The swarms have each filled over two supers and the old colony has started in the second. Would I have obtained more honey if they had not swarmed?

2. How can I know if the virgins mated with their brothers, as I think it is possible as the nearest bees to me are three miles away over a ridge?

3. Should I requeen the prime swarm? When?

4. How many frames of honey does a colony need to winter outside?

5. Are Italians the only bees having three yellow rings on the abdomen? Should the rings be wide or narrow?

6. What causes the bees to fly out in front of their hive in great excitement for a short time and then return to it without attempting to cluster?

Washington.

ANSWERS: — 1. Very likely you would have had more honey up to date of your letter if the bees had not swarmed. But if the season should continue long and late it might be the other way.

2. You cannot know, unless it be that your neighbor's bees are different from yours (say blacks, while yours are Italians) and then you may tell by the worker progeny of your young queens.

3. No, unless it be to give them a queen of better stock, and then you can do it at or near the close of harvest.

4. They should have the equivalent of thirty pounds of honey, and forty will do no harm.

5. There are others having three such rings, as the Cyprians. It doesn't matter about width of rings. The distance of one ring from another being the same in all cases.

6. It is the younger bees coming out for a play spell to take exercise.

How to Prevent Swarming?

My bees are hybrids but I am requeening with Golden Italians. My greatest trouble in handling bees is my inability to prevent swarming. I have tried numbers of plans, but still they swarm. Have tried ventilation, both top and bottom, give them plenty of space, go through them in the spring before they start raising young and give them a thorough house cleaning, put on supers when I see they are ready for them and still they swarm.

The most satisfactory way I have found yet, is to go through them and cut out all queen cells, after they have the swarming fever. I would like to read some other experiences on this subject in the American Bee Journal. If I could overcome this one thing, I would be better satisfied to handle bees. Have read some about cutting out drone combs, so am going to try it next spring, and replace with worker comb.

Each new swarm I take shall be put on frames filled with full sheets of foundation, as heavy as they make. My idea is not to increase the number of colonies, but keep the old ones strong and well stimulated.

I saw in the May number, I believe, where some one said "the up to date" bee man does not use, or hardly ever uses the queen trap. I do not see how I could get along without it. I try to have one for each hive. When I see them getting ready to swarm I put on the trap, or else I would lose them I am not physically able to climb and carry off

limbs, then too, my work takes me away from home nearly all day, so I would lose 9 out of every ten swarms were it not for my traps.

As I am somewhat of a carpenter, I make all my own hives. Some may say I can buy them cheaper, but being in the lumber business I make them at odd times. Not considering my time, they cost me about 60¢ each. I make mine with glass sides and wooden panels, which is a lot of help, as you can see their progress without disturbing them and know when they are ready for supers. Of course, I buy my sections as I run for section honey exclusively. Mississippi.

ANSWERS:—I heartily sympathize with you in your struggle against swarming. I've been fighting it for years and am not through yet. Cutting out cells does sometimes and sometimes not. You can shake swarms, but it is a good deal like letting the bees swarm. Cutting out drone comb may help, but will not stop swarming. If you exchange the old queen for a young one about the time swarming begins, you are safe from swarming till another year. One of the best ways to avoid swarming is to run for extracted honey and use the Demaree plan. Just before swarming put all the brood but one frame in a second story over an excluder, leaving the queen below with one frame of brood and empty combs or frames filled with foundation.

Miscellaneous Questions

1. Will hen lice bother bees if one has them in house apiary in the second story of a chicken establishment?

2. In winter if bees run out of honey stores will they feed upon the stored pollen? Is it as good as the honey stores?

3. In giving bees candy for winter, would it be all right to pour the candy right in the empty combs while soft, or would it be better to insert the sheets of candy between the frames?

4. Will chickens bother bees.

5. How many hives do you think I could keep in my apiary here in Spokane. There are about a dozen good parks where there is a constant blooming of clover, domesticated flowers and trees. I live on the edge of one of the parks. There are practically no others here who keep bees. Washington.

ANSWERS:—1. I never have heard of bees being troubled by such lice.

2. No, when the honey is all gone they will starve to death, leaving plenty of pollen in the hive.

3. It would be all right if you could get the candy into the cells, but I don't think you can.

4. Generally not. Some report that they eat drones, and there have been a very few reports of their eating workers.

5. I could hardly make a safe guess. Probably 50; possibly 100.

Cellar Bees—Introducing

1. Is it a good plan to winter bees outside up to December 1st, in boxes filled with sawdust, 6 inches of sawdust under hives and all around except in the front, which is covered with very thick paper, a super containing a thick cushion of chaff on top of each hive and a roof above to shelter the whole from snow or rain from December 1st to March 1st. I will winter them in a cellar according to directions in "Wintering of Bees" by A. I. Root. On March 1st I will put them in sawdust again as described above and leave them in it throughout the summer, or till next December.

2. Will it hurt the bees if in January I give them two combs taken out of hives in August, the cells partly filled with honey but unsealed. Does that unsealed honey ruin in the hive when I put it away. The hive is in the house.

3. In order not to stop the queen from laying, I want to introduce during honey flow, a tested queen thus: Brood chamber is divided into two equal compartments by a

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zinc queen-excluder fitting so well under hive cover and all around that the queen in one compartment cannot go into the other, not even by the entrance, the inside of it is covered with a piece of queen excluder. The cage containing new queen is inserted as it reached me from the mail. Five days later I take out the old queen and kill her and remove queen excluder, and will look whether new queen is in. What do you think? Or would it be better later in the afternoon to remove old queen and put cage of new queen in the middle of brood chamber?

4. Will this tested queen lay as soon as she is out of the cage?

ANSWERS.—1. If the bees have a good flight December 1st, it will be all right; if not, it will be better to put them in the cellar directly after they have their last flight.

2. Any disturbance in winter is bad for the bees, although it will be better to disturb them than to let them starve. Unsealed honey is not so good for winter and it does not ripen in the house as well as when the bees are on it.

3. If the new queen gets out of the cage before the old queen is killed, she will very likely be killed by the bees in spite of the queen excluder.

4. She sometimes begins laying the same day she is out of the cage and sometimes not for two or three days or longer.

Buying Swarms and Dividing

1. Can I divide stray swarms, putting in frames with foundation, say about one-half to each swarm and put a queen in the new colony?

2. Will the new colony have to be kept closed after dividing?

3. Can I start a good swarm with one nucleus and queen. If so, how should I proceed?

4. I can get new swarms from \$1.50 to \$2.00. Is that too much?

5. How late would it be safe to divide and also to buy queen? Our seasons are long here. The 10th of October is a very early frost. Cotton blooming till frost.

Oklahoma.

ANSWERS.—1. Yes you can divide and have each one a good colony if the division be made early enough and the season be good. Leave the old queen in the one that is left on the old stand, and the part that is put on the new stand will more readily accept a queen, for the older, or field bees will all go to the old stand, and the younger bees are better about accepting a queen.

2. Yes, you may do well to keep the bees fastened in for 2 or 3 days in the hive that

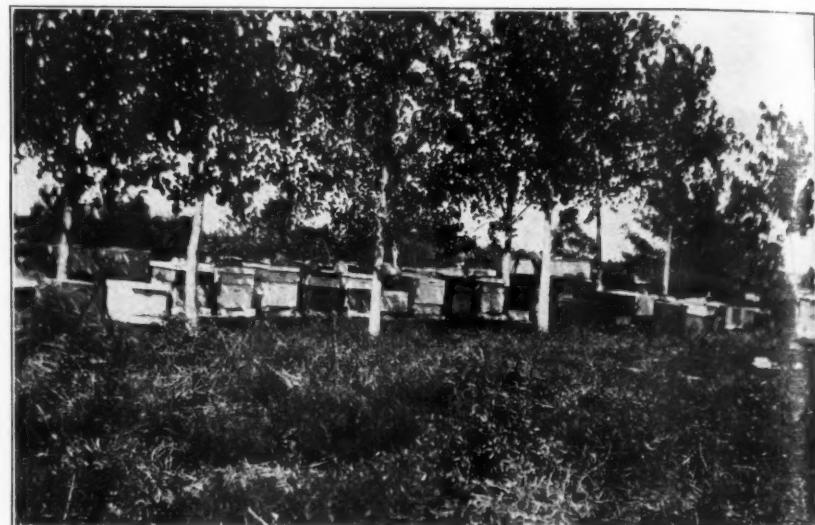
is put on the new stand, and then less of them will return to the old place. If, however, you put one or two frames more than the half on the new stand (of course, with their adhering bees) then it may not be necessary to fasten the bees in. For some reason the bigger the lot of bees and brood the less inclination to return to the old place.

3. Yes, you can start a colony with a one-

to 10th, provide the colony be strong with plenty of brood.

Crooked Combs

1. I bought 15 colonies of bees last fall, and they were on crooked combs. I cannot take the frames out without tearing the combs. The moths are getting into some of them. What must I do? How is the best way to



PART OF THE HALEY CRUM APIARY AT CRAWFORD, NEB.

frame nucleus and a queen, but it will take a lot of boosting to have it a good colony before winter. Of course, it makes a difference when the start is made, and if made early enough, with a good force of bees to cover the one frame, in a good season it may need no help. Otherwise, the way to proceed is to give it a frame of brood about once in ten days until it has at least four frames of brood well covered with bees, and then it will be able to take care of itself.

4. All depends upon prices in your locality; but the probability is that the figures named are none too high.

5. I don't know just how late it might be safe to divide. If the flow continues until Oct. 10th, and a laying queen is furnished, you might risk a division as late as Sept. 1st

get them on straight combs when you haven't any extra ones?

2. When is the best time to divide colonies: in the spring or fall?

GEORGIA.

ANSWERS.—1. Better leave them to winter as they are. Then when bees begin to gather next year—say in fruit bloom—try if you can find one frame somewhere in the hive that you can take out. If so, then by a little cutting you may continue to take out adjoining frames, crowding each comb into its frame, cutting away attachments wherever necessary. It may be, however, that the combs are built in too crooked for this; in which case wait until the bees swarm; hive the swarm on frames filled with foundation, and 21 days later cut up the old combs and melt them, adding the bees to the swarm.

In general it may be said that the way to get straight combs is to let the bees build them on frames filled with foundation.

2. In spring or early summer, at the time when bees swarm naturally.

Bees Carried Out—Increasing

1. I have one colony that is carrying out brood in all stages of development, some alive with wings almost developed. Can you tell me what is wrong?

2. Is it profitable to buy nuclei and queens in September to increase the number of colonies?

IOWA.

ANSWERS.—1. One guess is that the larvæ of the bee-moth, or wax-worms, have mutilated the young bees with their galleries, and the bees carry them out. Another is that the bees are driving out the drones and destroying the drone larvæ.

2. Generally it is better to get them at the beginning of the season.

Arranging Feed—Feeding in Spring

1. Do you think it would pay me to go through all of my colonies this fall after I think the honey-flow is all over for this year and put the honey that is above down



APIARY OF H. O. BADER AT BROWNING, ILL.

American Bee Journal

in the lower story so it would be closer to the bees?

2. Do you think it would pay to feed the bees in the spring, using the H. H. Thale feeder to get lots of young bees ready for the flow; begin to feed them so as to have lots of young bees by the time that the alfalfa comes into bloom.

ARIZONA.

ANSWERS.—1. That depends. If the bees have had their own way they are likely to have the honey where it is best for them. If, however, by some means the honey is scattered in two stories, then try to get it compact in one story.

2. It will pay if there is nothing the bees can gather; otherwise not.

Sweet Clover—Bees in a Porch

1. There is not a half acre of white or alsike clover within 3 miles. Would it be profitable to sow 15 or 20 acres?

2. How many acres will it take for 40 colonies?

3. What plant would you advise to sow for bees only?

4. I tried having queens fertilized over a queen-excluder, but failed. They kill her before she becomes fertilized. Why do you think I failed?

5. I have a swarm of bees in a porch, and have tried using a bee-escape to get them out, but failed. They would all crowd to the escape and close it up. What way would you recommend without doing any damage to the porch? I intend to allow the bees to rob it after I have the swarm out.

6. What size entrance would you advise for winter?

7. Are the Cyprians better honey gatherers than the Italians?

ANSWERS.—1. Just for the honey alone that the bees would get, it would not pay at all. But if you take into account the additional gain from hay and pasture, it might pay well.

2. I don't know. At a guess I should say that during the time of its bloom 12 acres of alsike and three times as much white clover might keep 40 colonies busy. But that may be a very wild guess.

3. It is not likely you will find any plant that will pay with its honey alone. Likely sweet clover will come as near to it as any.

4. I don't know. They fail for me the same way, although sometimes I find a queen successfully reared in an upper story without any intention on my part.

5. You probably used a Porter escape. If you use a cone escape of wire-cloth it will not be clogged. Sometimes, however, especially if the cone is small, the bees collect at the apex and find their way back. You can help to prevent this by using a double cone, one 4 to 6 inches high, and a larger one over it.

6. For cellar, the larger the better. Outdoors $\frac{3}{4}$ -inch deep full width of hive is favored by many, but opinions differ.

7. They are not generally considered better.

First Favorable Illinois Report

I was quite busy for a while in June. I had 76 swarms in four days. I had 12 swarms unite, making a bulk of five bushels of bees filling six hives, some of them double and some with big caps holding a bushel each.

About a week ago I had another experience. Some one opened my bee-house and exposed 90 supers to my 200 colonies of bees. They cleaned out 33 and damaged the others some.

ANDREW SVERKERSON.

Oregon, Ill., Aug. 10.

Failure for Three Years

Bees have been a failure in this part of the country. I haven't had any honey for the last three years. Very few bees around here.

JOHN A. BLOCHER.

Shirley, Ill.

Large Hives

That article of Mr. Barone on large hives is all right. It was the big hives which gave me the surplus. The 8 frames did nothing—not a half crop with me. The big hives need no frost; they are chock-full.

Mooreland, Iowa, Sept. 1. J. P. BLUNK.

Will Go Into Winter Well Supplied

We have had a very good honey flow this year from poplar; also basswood and sourwood produced some, but ivy or "little laurel" produced some which came between linden and poplar which was bitter. When I found this was coming in the gap between poplar and sourwood, I raised up cases between to catch this which was streaked with this poisonous and bitter honey, which I will now use for winter stores.

It appears that the fall flow will not be good, but the white and purple asters are just now about to bloom. When these are good the bees generally fill up well about frost. I am now doubling up and getting ready for winter.

I have tried to improve my bees by cutting out all objectionable queens and giving the very best of young queens reared from the ones that produced the most honey, all other advantages considered. I think almost all of the bees in this part will be in good condition for winter.

R. A. SHULTS.

Cosby, Tenn., Sept. 18.

Making "Clouded" Hives

I notice in Mr. J. M. Killian's hive exhibit on page 418 of the December issue of the

REPORTS AND EXPERIENCES

Followed Dr. Miller's Advice

You will remember that I asked your advice about putting my bees in the cellar and feeding A sugar in the late fall or early part of the winter of 1912. You advised me to do so and report.

I did not lose a colony after putting them in and feeding A sugar as you advised, and they did fairly well last year, 1913. I have 25 colonies in the cellar at this time, and am feeding all that are short on sugar. It works well if kept dry, but it cakes hard if it gets damp. If it gets hard I grind it up again and put it back.

On page 413 of the American Bee Journal for December, 1913, Mr. Doolittle says where anything is to be gained by disturbing bees in winter it is all right to disturb them. I gained four colonies by disturbing them Nov. 19, 1913. A farmer gave me four colonies in old box hives, so old that they would not stand handling, so I put frames containing pollen and honey in four hives and transferred the bees from the old box hives to the ones I had fixed to receive them, and brought them home and put them in the cellar and they did finely.

A. J. TOBEY.

Elmira, N. Y., Feb. 2.

Too Dry for Bees

We have had a drouth throughout the whole summer, the bees hardly finding enough to make a living until the month of August. We have had good rains this week. The bees are doing nicely now. I only have 11 colonies.

PHILIP HEINTZ, JR.

Jefferson Barracks, Mo.

Faces Prospect of Feeding for Winter

There has not been any rain here to speak of since April 20, less than an inch has fallen since then. There was not any white clover, as it was all fall killed last year; the prospect for a fall flow is very poor.

Last year I secured 1000 pounds of extracted honey and 500 pounds of comb from 27 colonies, spring count, and increased to 48 colonies. They wintered well and built up strong this spring, but there was not any-

thing for them to gather.

I have had to feed to keep them from starving. I examined them about two weeks ago and found them almost starved; nothing but a very little sealed brood, no eggs or larvae, and several of them were taking out the sealed brood. I will have to continue to feed, and expect to feed for winter. I am glad this condition does not exist all over.

JAMES T. JOHNSON.



APIARY OF A. SVERKERSON AT OREGON, ILL.; ONE OF THE VERY FEW ILLINOIS APIARIES REPORTING A CROP THIS SEASON

American Bee Journal

Bee Journal, some clouded bee hives in imitation of the smoke of the pine knots of about 50 years ago. In this picture it looks as though the clouded markings were done with paint and brush. W. Z. Hutchinson also used to paint hives in that manner. But the best way to do it is with a kerosene lamp. Make a chimney of tin to fit the lamp that runs up slant to the top, and having the hole at the top about $\frac{1}{8}$ or $\frac{1}{4}$ inch in diameter. Then after the hive is painted white and before the paint has had time to dry, hang the hive up on a peg so that the lamp can be passed back and forth under it. Keep the flame of the lamp turned low until a hive is ready to be smoked, and then turn on the flame suddenly and a cloud of black smoke will be produced. Raise the lamp up and down so as to make the cloud dark in some places and light in others. Keep the lamp wick turned low while arranging another side to be smoked.

In this way hives can be painted as beautifully as the frost on a window or the snowflake on paper or granite ware. I painted hives that way for about 20 years, but of late I have come to the conclusion that hives should not be painted at all. It is pleasanter to see fine healthy colonies than the neatness that paint produces.

Owensmouth, Calif. C. W. DAYTON.

The Foulbrood Situation

On page 48 of the February issue of the American Bee Journal, Mr Louis H Scholl gives the old, old story we hear so often of lack of appropriation from the State to carry on our inspection work. He says they have a good law in Texas; all are, but the trouble with all laws so far is that there is nothing binding on the beekeeper.

The inspector calls upon him, inspects his bees, finds a little disease, shows the beekeeper how to recognize the disease, treats the diseased colonies and informs the beekeeper that he must have his yard clear of disease when he next comes, or he will burn the diseased colonies up (which I understand, by law, he has no right to do, whether diseased or not).

The inspector takes several dollars of the State's money for his job. The beekeeper may thereafter entirely neglect his bees. He either does not care or depends upon the inspector to look after them. The inspector has simply done a little "necessary work," and used a little "moral suasion" on the beekeeper. It is evident to suppress or eradicate foulbrood every beekeeper must be his own inspector. We put a license on fishing and hunting, why not on beekeeping, so a man to keep bees lawfully must have a permit to do so. On page 855, Dec. 1 issue of Gleanings in Bee Culture, I proposed a new foulbrood legislation, which please see. If this or a similar law is in force in a State for several years, it will have no foulbrood. None of the present laws will do this, at least they have not. H. E. HARRINGTON. Yacolt, Wash.

Classified Department

(Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.)

BEES AND QUEENS.

PHELPS' Golden Italian Queens will please you.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook. 1Atf 70 Cortland St., New York City.

FOR SALE—Choice Golden Queens that produce Golden bees equal to any. Wm. S. Barnett, Barnett's, Virginia.

PURE TUNISIAN QUEENS, tested, \$1.00; 2-lb. bees with tested queen, \$1.00. Safe arrival guaranteed. Lenoel, Nabeul, Tunis.

GOLDEN all-over Queens. Untested, \$1.00. Tested, \$1.00. Breeders, \$3.00 and \$10. Robert Ingham, Sycamore, Pa.

A LIMITED number of Golden Italian Queens during October, 50 cts. each. J. T. Elkinton, Jennings, La.

UNTESTED Queens, 75c each; \$7.50 per dozen. Nuclei, \$1.25 per frame. Bees, \$1.50 per pound. Full colonies, 8-frame, \$6.50; 10-frame, \$7.50. Stover Apiaries, Mayhew, Miss.

GUARANTEED purely mated select untested queens, same as advertised before at 50 cts. each. Queens by return mail. J. M. Gingerich, Arthur, Ill.

QUEENS, improved Red Clover Italians, bred for business, June 1 to Nov. 15. Untested Queens, 75c each; dozen, \$8.00; Select, \$1.00 each; dozen, \$10. Tested Queens, \$1.25; dozen, \$12. Safe arrival and satisfaction guaranteed. H. C. Clemons, Boyd, Ky.

WE WILL be in the field with good Italian Queens in June for \$1.00 each; 6 for \$5.00. Two-frame nuclei in June without queen, \$2.50; with queen, \$1.00 extra. D. J. Blocher, Pearl City, Ill.

PHELPS' Golden Italian Bees are hustlers.

ITALIAN QUEENS, 5-banded, for sale. Ready April 15. Untested queens, 75c each, or \$7.25 per dozen. Safe arrival guaranteed. W. W. Talley, Queen Breeder.

3Atf Rt. 4, Greenville, Ala.

PURE Golden Queens, the best that twelve years can produce. Untested, \$1.50 each. Select tested, \$3.00 each. Breeders, \$5.00 to \$50. Send for booklet on "Bees and Diseases." Geo. M. Steele, 30 South 40th St., Philadelphia, Penna.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, \$1.00 each; Tested, \$2.00; Breeders, \$5.00 and \$10.00. 2Atf J. B. Brockwell, Barnetts, Va.

GOLDEN and 3 banded Italian and Carniolan queens, ready to ship after April 1st. Tested, \$1.00; 3 to 6, 95c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., \$1.50; Nuclei, per frame, \$1.50. C. B. Bankston, Buffalo, Leon Co., Tex.

FOR SALE.—Three-banded Italian Queens, bred from the best honey-gathering strains, that are also hardy and gentle. Untested queens, 75c; six, \$1.25; 12, \$2.00. Tested, \$1.25; 6, \$7.00; 12, \$12. For select queens, add 25c each to above prices. Breeding queens, \$3.00 to \$5.00 each. For queens in larger quantities write for prices. Robt B Spicer, Wharton, N. J.

PHELPS' Golden Italian Queens combine the qualities you want. They are great honey gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; Tested, \$2.00; Breeders, \$5.00 and \$10. C. W. Phelps & Son, 3 Wilcox St., Binghamton, N. Y.

QUIRIN'S Famous improved Italian queens are northern bred and extremely hardy; over 20 years a breeder. Colonies, Nuclei and bees by the pound. Ask for Circular, it will interest you. H. G. Quirin, The Queen Breeder, Bellevue, Ohio.

HONEY AND BEESWAX

WANTED—Comb, extracted honey, and beeswax R. A. Burnett & Co., 6Atf 173 S. Water St., Chicago, Ill.

NULL'S FAMOUS MELILOTUS HONEY, 10 lb. pail prepaid any express office east of the Rocky Mts., \$1.50. Null Co., Demopolis, Ala.

LIGHT amber honey 8½c a lb. California sage honey, 10c a lb. 2 to 10-lb. cans to a case. Sample of either 10c. I. J. Stringham, 105 Park Place, New York, N. Y.

THE BEEKEEPERS' REVIEW is now owned and published by the honey producers themselves. It is the paper all honey producers should support. Eight months trial subscription, beginning with the May number, for only 5c. Sample copy free. Address, The Beekeepers' Review, Northstar, Mich.

FOR SALE—Horsemint honey, also dark from Huckleberry. Put up in new 10-pound cans. Write for prices. A. L. Krueger, New Ulm, Tex.

FOR SALE—Light extracted honey, two 60-pound cans to case, new cans, 8½c cts.; in 10 case lots at 8 cts per pound, f. o. b. here. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Raspberry, Basswood No. 1 white comb, \$1.00 per case; fancy, \$1.25; 24 Danz sec. to case, 6 to 9 cases to carrier. Extracted, 120-lb. cases at 9 cts. Wiley A. Latshaw, Clarion, Mich.

RASPBERRY HONEY—Left on the hives until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. Put up for sale in new 60-lb. tin cans. Price, \$1.00 per can. Sample by mail, 10 cts., which may be deducted from order for honey. Elmer Hutchinson, R. D. 2, Lake City, Mich.

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BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co., 4Atf Greenville, Tex.

BETTER HIVES FOR LESS MONEY—Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. Burdick, Sunnyside, Wash.

THE A. L. ROOT COMPANY'S Canadian House, Dadant's Foundation, Poultry, Supplies, Seeds. Write for catalog. The Chas. E. Hopper Co., 185 Wright Ave., Toronto, Ont.

MISCELLANEOUS

ORIGINAL and unique honey advertising post cards (photos). Write Dr. Bonney, Buck Grove, Iowa, for samples.

I GOT 100 pounds of comb honey per colony; my neighbors got none. I'll tell you how for 25c. O. N. Baldwin, Baxter, Kan.

YOU HAVE BEEN THINKING for some time you would like to become a National Beekeepers' Association member. Now is your time; a year's dues to the National and eight months' subscription to our own paper, the Beekeepers' Review, beginning with the May number, both for only a dollar. Address with remittance. The Beekeepers' Review, Northstar, Mich.

POULTRY

FOR SALE—Single Comb Buff Orpington eggs for hatching, pure bloods: \$1.00 per 15 or \$5.00 per hundred. Satisfaction Guaranteed. W. H. Payne, Hamilton, Ill.

FOR SALE

FOR SALE—1000 colonies of bees in 10 aparies. Located in Imperial Valley where crop failure is unknown. Owner started without capital less than five years ago. Is now retiring from active business. Profits for five years have averaged more than 100 percent annually.

J. Edgar Ross, Brawley, Calif.

WANTED

WANTED—From 4000 lbs to carload of comb and extracted. Iowa, Wisconsin or Michigan honey. Quote me prices. W. H. Hyde, New Canton, Ill.

SITUATIONS.

HELP WANTED—We desire an experienced apiarist to run from one to three hundred colonies of bees for three years on shares for one-half crop and increase. State age, nationality, and former experience in first letter. Spencer Apiaries Co., Nordhoff, Cal.

American Bee Journal

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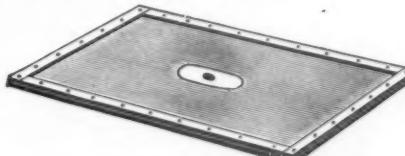
For getting bees out of the super automatically before removal from the hive. It is a combination of speed, safety and satisfaction that saves honey, time and money for the user. As a labor-saving device it has no superior. Avoids "breaking the back" in shaking heavy supers to get the bees out. Leading beekeepers the world over use these Escapes and give them their unqualified endorsement. No well-regulated apiary can afford to be without bee-escapes any more than it can afford to be without a bee-smoker.



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All Porter Escapes fit the same size opening in Escape-board. For sale everywhere by dealers in Beekeepers' Supplies. If you have no dealer, order from factory, with full instructions.

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Fine White Alfalfa
CAN SUPPLY ANY QUANTITY**

Extracted honey packed in 60, 10, 5, and 2½ lb. cans

Send for sample and prices today

DADANT & SONS, Hamilton, III.

Honey and Beeswax

CHICAGO, Sept. 15.—There is a firm feeling in the choice grades of white comb honey and sales are now being made chiefly at 10c per pound, and where the wood section is allowed for it is bringing 17c per pound. The No. 1 and off grades bring from 1@1c per pound less. Amber grades are ranging from 10@13 per pound. Extracted white grades such as clover, linden and button sage sell chiefly at 9c per pound, with the western white alfalfa selling at 7@8c per pound. Amber grades range from 6@8c per pound, according to color and quality. Beeswax market is easier, but yellow wax free from sediment brings 34@35c per pound.

R. A. BURNETT & CO.

CINCINNATI, Sept. 18.—There is very little demand for honey at the present time. However, we are selling our comb honey from \$3.00 to \$4.00 per case, according to the quality and who is buying it. Our extracted honey, for the best white 7½@10c in crates of 260 pound cans; for amber extracted from 5@7½c. For choice bright yellow beeswax we are paying 30c a pound delivered here.

THE FRED W. MUTH CO.

KANSAS CITY, Mo., Sept. 15.—The receipts of comb honey are liberal. The demand is good. There is no change in extracted. The receipts of a new crop are very light, with demand improving. We quote No. 1 white comb, 24 section cases, \$4.15 to \$3.25; No. 2, \$2.75 to \$3.00. No. 1 amber, \$3.00; No. 2, \$2.50 to \$2.75. Extracted, white, per pound, 8c; amber, 7@7½c; dark, 4@4½c. Beeswax, No. 1, 28c; No. 2, 25c.

C. C. CLEMONS PRODUCE COMPANY.

BOSTON, Sept. 17.—No. 1 and fancy new white comb, 16@17c per pound. Fancy white extracted in 60-pound cans, 11c per pound. Beeswax, 30c.

BLAKE-LEE COMPANY.

SAN FRANCISCO, Sept. 20.—Comb honey is not being offered, and the little that is taken up at 10c for fancy. Water-white extracted, 7@7½c; amber, 5@6½c; dark, 4@4½c. Little or no demand. Beeswax, 30c for light, 21@26c for dark.

JOHN C. FROHLIGER.

DENVER, Sept. 15.—We have no more old stock of comb honey to offer. We are selling extracted in a jobbing way at the following prices: White extracted, 8c; light amber, 7c. We pay 32c per pound in cash and 43c in trade for clean yellow beeswax delivered here.

THE COLO. HONEY-PRODUCERS' ASS'N.
Frank Rauchfuss, Mgr.

INDIANAPOLIS, Sept. 17.—There seems to be quite a demand for honey at this time. Some shipments of new honey have arrived. We quote best white comb, \$3.75 per case; white extracted in 60-pound cans, 9½@10½c. Beeswax brings 31@32c cash, 33@34c in exchange for bee-supplies.

WALTER S PODER.

LOS ANGELES, Sept. 17.—The supply of honey in California is considerably in excess of the demand, which has been extremely light this season. The average prices received for honey so far this year have been about 1c per pound less than were received last year, but this has not resulted in a larger amount of business. Price on wax has dropped 2 or 3c per pound since the keen demand for foundation purposes has ceased. We quote the market on honey in carload lots for eastern shipment about as follows: Fancy water-white sage honey, 7½c; light amber sage, 5½c; light amber alfalfa, 5c.

HAMILTON & MENDERSON.

NEW YORK, Sept. 17.—There is very little new crop of comb honey arriving as yet, and owing to the war there is no demand to speak of. In a small way, white honey is selling all the way from 12@15c per pound, according to quality and style of package: lower grades at from 11@12c. There is no buckwheat on the market as yet. As to extracted, we have never seen the market in such condition as it is at present. Large quantities of West India honey are coming in here, and are offered and sold at all kinds of prices, and we are advising southern beekeepers to write us before making any shipments, as we may not be able to realize prices that they expect us to get, and we do not wish them to be dissatisfied afterwards.

HILDRETH & SEGELKEN,

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A special arrangement secured by the American Bee Journal, enables us to offer to our subscribers for a limited time only the American Bee Journal for one year with a full year's subscription to all four of the above high-grade publications, at the special price of \$1.30.

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WOMAN'S WORLD has more subscribers than any other magazine published, over two million a month. Its articles, its stories, its illustrations, are the best that money can buy. It is a magazine to be compared with any home magazine in the country, regardless of price, without fear of contradiction of any claims we make for it. Its stories are by authors known the world over.

This offer supplies you with a Magazine of the best quality, giving you a year's supply of good literature at a saving of one-half cost

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AMERICAN BEE JOURNAL, Hamilton, Illinois

An Embarrassing Mistake.—A very young wife in a strange hotel was trying to find her husband. Thinking he was taking a bath, she knocked on the door of the bath-room and said:

"Honey, are you there?"

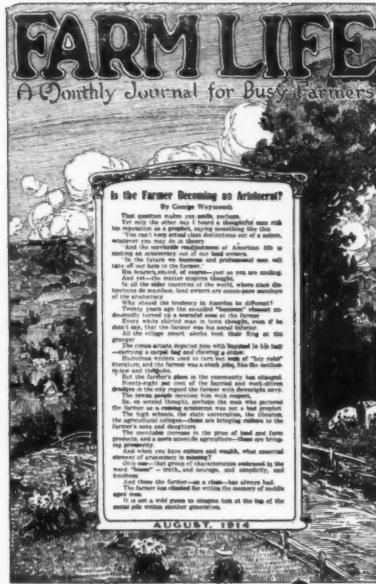
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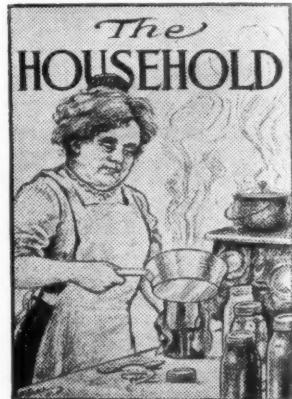
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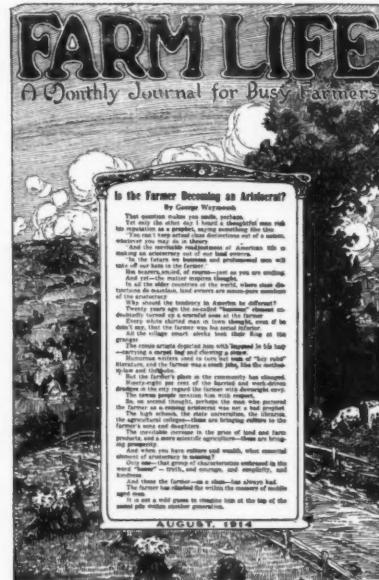
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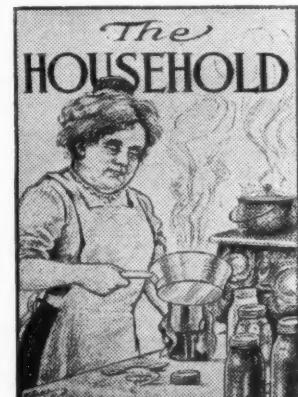
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We also manufacture **Hives, Brood-Frames, Section-Holders and Shipping-Cases.**

Our Catalog is free for the asking.

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EARLY ORDER DISCOUNTS WILL Pay You to Buy Bee Supplies Now

30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

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Is the **Comb Foundation** made to suit the **Honey Bee**.

It's the **Comb Foundation** that helps produce the **full capacity honey crop**.

It's the **Comb Foundation** to give your **Honey Bees**.

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Perfect sections from young, white, basswood. White Pine Hives and Supers. Excellent Shipping-Cases, Brood-Frames, Separators, etc. We invite your correspondence.

Guarantee — All goods guaranteed perfect in workmanship and material or money cheerfully refunded.

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Honey!

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Try My Bright ITALIAN QUEENS

This is what one customer writes:

JOSEPHINE, TEX., June 16, 1914.

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Dear Sir:—I am sending you \$0.00 for which please send me 12 Untested Golden Italian Queens. The queens you sent me are fine, and old bee rearers say they are the finest they ever saw. They have surely made a reputation here for you. Several men say they will order queens soon.

A. M. MORRISON.

I have other letters that say the same. Selected Untested, each 6¢; Tested, each \$1.25; 2-frame nuclei, each \$2.50. I guarantee safe arrival and perfect satisfaction.

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Get my prices before placing your orders.

R. H. SCHMIDT
R. 3, Box 209, Sheboygan, Wis.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which ensures the best quality of every thing. We sell at factory prices, thereby ensuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-Page Catalog

Our new 1914 catalog contains double the pages of former editions, and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so orders may be filled with our usual promptness. Write us your needs. Early-order discount this month 2 percent.

C. H. W. WEBER & CO.

CINCINNATI,

2146 Central Avenue,

OHIO

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